

The Sins of Knowledge Management

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**BODY SHOP FOUNDER
ANITA RODDICK:**

Changing the face
of business

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**NOVOPOINT CEO
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eye-popping IT budget

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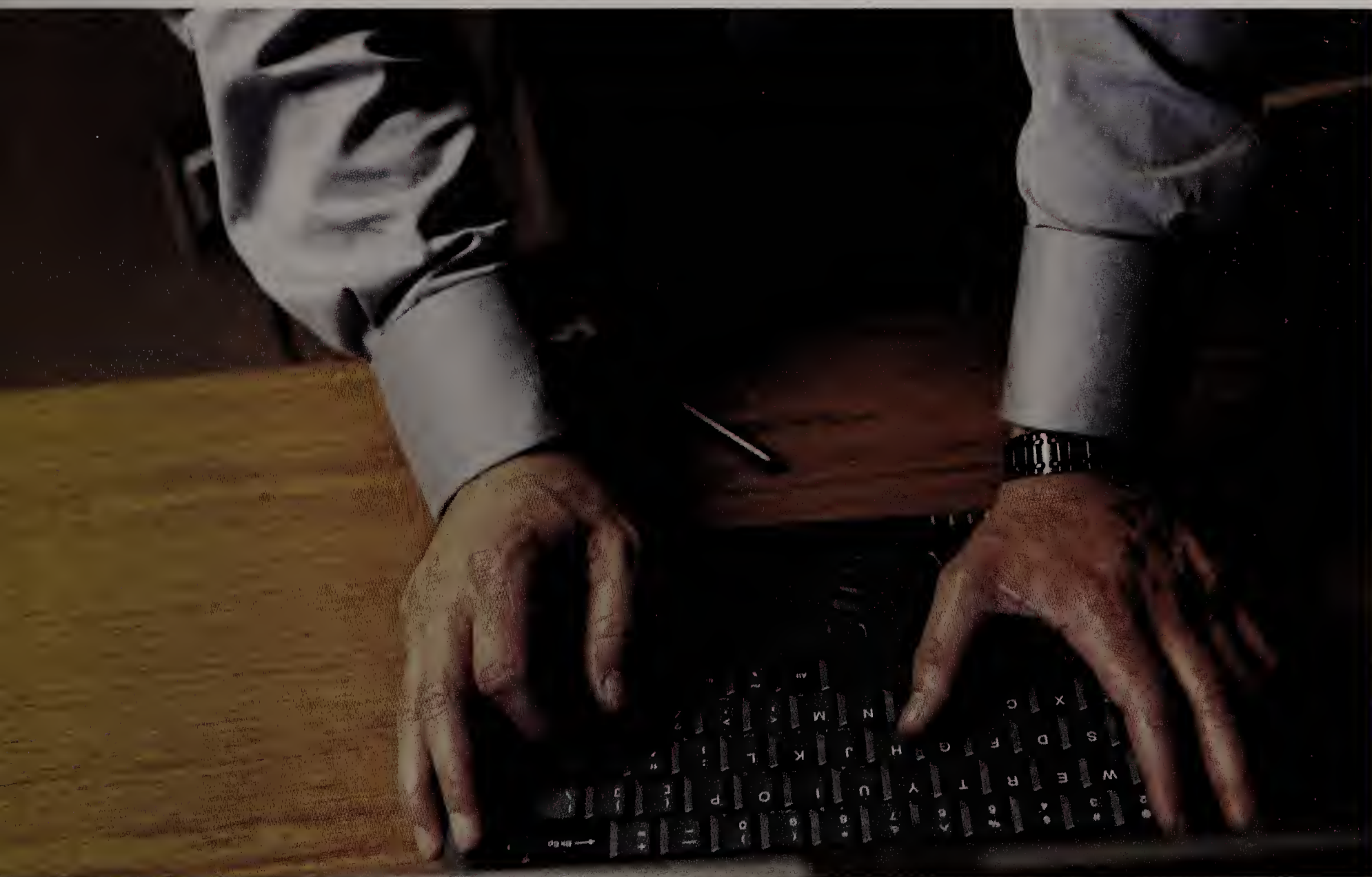
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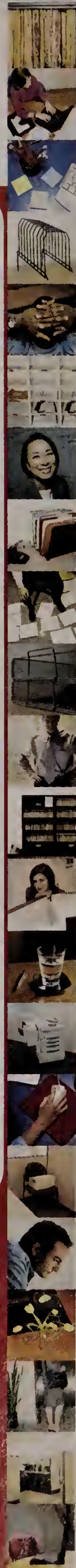


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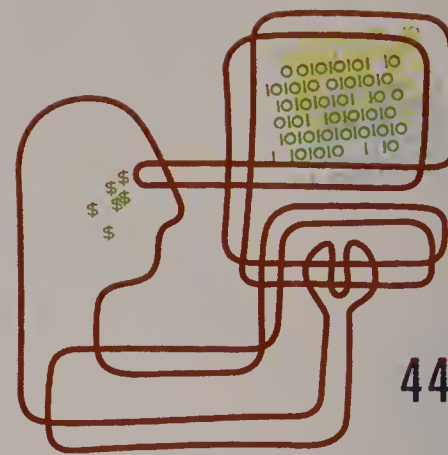
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STUFF YOU NEED IN YOUR BUSINESS

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Fear

SURVIVAL OF THE FITTEST As the economy twists and turns, only the strong will survive. Web Editorial Director Art Jahnke closely examines corporate strategy in a weekly column. www.darwinmag.com/connect/opinion

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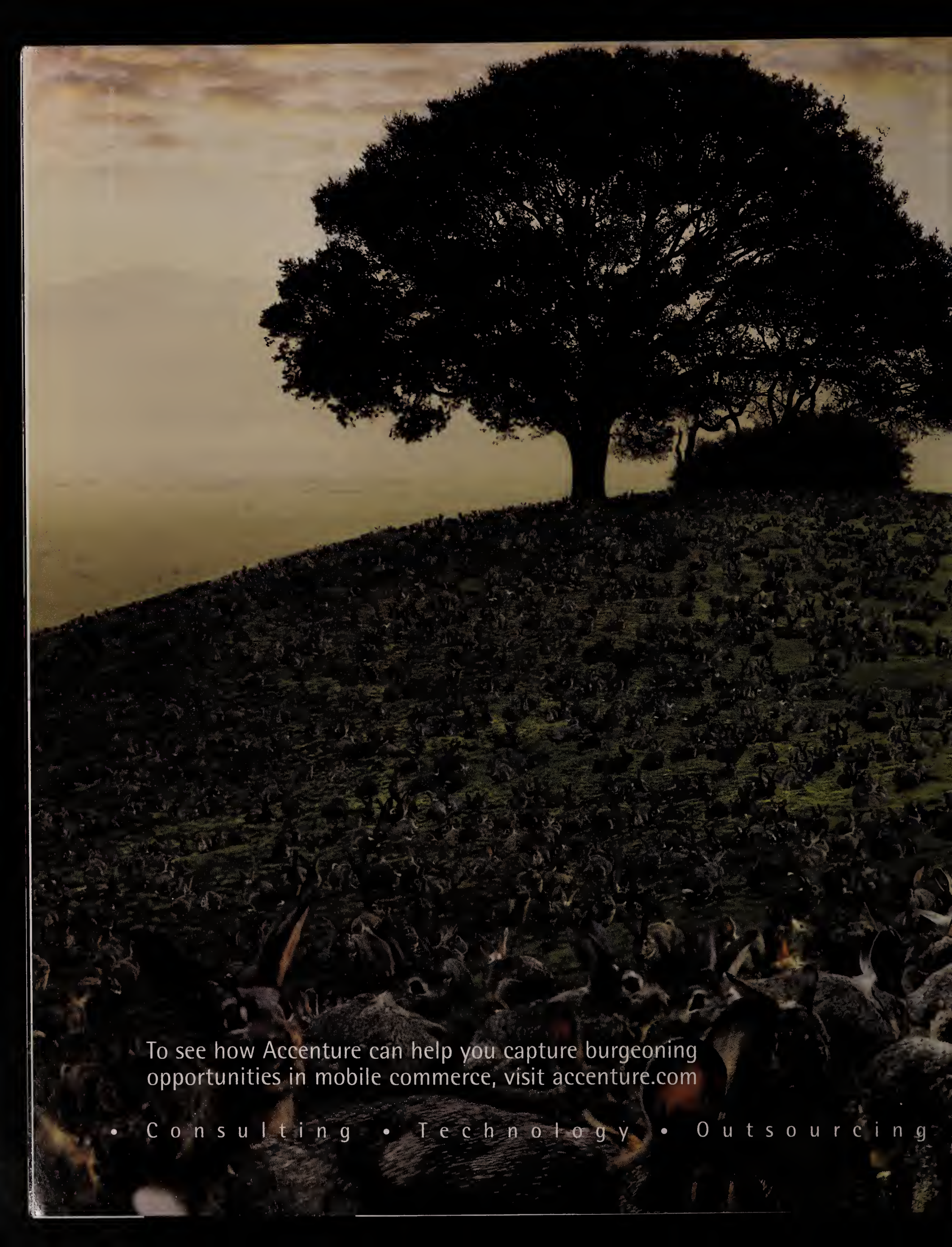
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Big, Ugly Words

Infrastructure is one of those ugly Latinate compound words that replace a mouthful of smaller words, which, together, are much more precise than the replacement but take too long to say. This is especially true when the audience's familiarity with the term's definition can be taken for granted (at best a debatable proposition). In time, we become so accustomed to the ugly replacement that we stop ever bothering to define it.

So let's try to define it. Besides being an ugly word, infrastructure is also ugly—but important—technological territory. It's a territory fraught with wiring, protocols, servers, clients, switches, routers, operating systems, firewalls, databases and other software bits of mongrel parentage. In short, a profoundly dense array of cobbled-together hardware and software that compose the business technology equivalent of the former space station Mir. Some is old, some is new; some works OK, some doesn't work at all. And all of it is meant to behave more or less coherently, as a unitary lump of enterprise capability.

Use of the word *infrastructure* confers a probably false sense of orderliness on the mess it is meant to describe (unless you're lucky enough to be so new an enterprise as

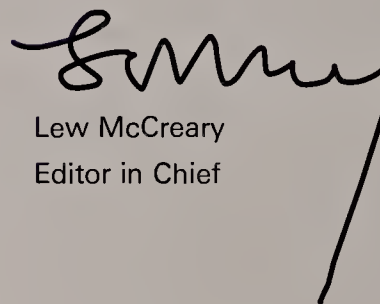
to have avoided the geologic strata of cobblings-together that most older businesses have undergone). Despite a supply of new components, lots of technology infrastructures are, in fact, deeply fragmented—fractured at critical junctures because the challenges of integration, upgrade or, perhaps, even of outright replacement are too complex, scary and expensive to think about.

But you need to pay serious heed to this big, ugly word. Infrastructure is the stuff you must attend to before you can have any real fun. Infrastructure is the bridge a lot of businesses will have to build (or substantially rebuild) in order to reach the promised land. Consider that when you submit a cool and ambitious spec to your technology group, and they respond with a counterproposal that promises no more than, say, 20 percent of your initial vision—well, that just might be the outdated infrastructure groaning under the weight of expectations it can't possibly satisfy.

Invariably, CIOs learn by hard experience that infrastructure upgrades are hard to sell to the chief executive because there's no strategic application involved and the price tag is usually a big, scary number. But what is the opportunity cost? How many 20 percent solutions will you accept before conceding that the limits of an antique infrastructure have to be addressed?

The unincinerated remnants of Mir recently crashed down in the ocean. The decision to replace it rather than continue to fix it was an economic one. Sometimes old infrastructures have to die so that new opportunities can flourish.

Have you brought down an aged infrastructure lately? Let me know at mccreary@darwinmag.com.



Lew McCreary
Editor in Chief

Not Just Another Pretty Interface.



Introducing Jasmine® *ii* Portal. The eBusiness Workplace That Empowers Your Organization To Win At eSpeed.

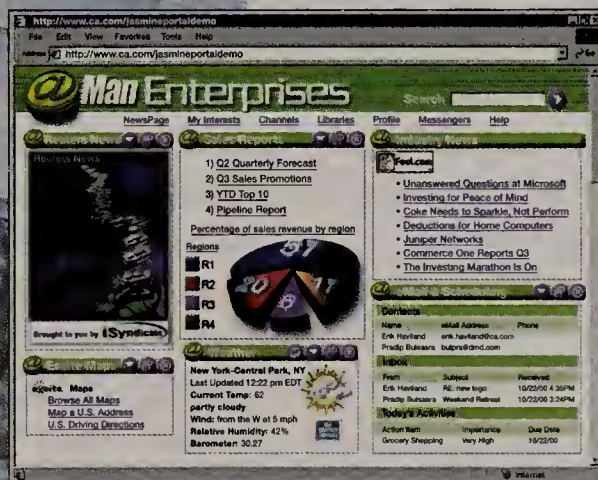
On the surface, most portals look and function the same. But one is dramatically different from all the rest — the Jasmine *ii* Portal. While some portals only let you customize their content, Jasmine *ii* Portal's **dynamic personalization** goes one step further. It intelligently finds information that other portals might not even consider delivering to users.

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A SWING AND A HIT

Mr. McCreary is playing with his observations of what's wrong with corporate IS groups ["Death-Defying Leap," January 2001]. Nevertheless, he delivers solid hits and a couple of home runs. The winner of the MVP (Most Valuable Precept) award goes to the notion that outsourcing should be the CIO's first option. Yet in order for that to work, the governance principle McCreary promotes must be in place. Otherwise it is too easy for a highly controlling senior executive to torpedo those types of solutions, especially when they impact his or her area of responsibility.

Ike Andrews | E-commerce Manager | Potlatch Corp. |
Spokane, Wash. | ike.andrews@potlatchcorp.com

WHAT DO YOU THINK?

Send your feedback to
letters@darwinmag.com.
Letters may be edited
for length or clarity.

DON'T ASP ME

I finally took the big step and joined AA (Acronyms Anonymous), and after reading your article "Talking the Talk" [August/September 2000] I think you should join too. Ask anyone what JPEG stands for, and 99 percent of the people who use it will have no idea.

The next time anyone says they are having a problem with their IP, simply tell them they should try to use the VAN option on their Video CAT and hit the ENT link on the CED option. Of course I just made up all of these acronyms, but who would know?

I wish that the computer world would get back to using a vernacular we can all understand—like English!
Mike Mullen | Ex-computer-language Guru | memcyp@aol.com

Darwin is happy to cut through the acronym hype, and we look forward to hearing from and helping perplexed readers.
—The Editors

I'M OK, Y2K

I found your article "The Year 2001 Problem" [January 2001] very interesting. As the Y2K director for a computer manufacturer in Texas, I received absolutely no recognition for the successful efforts of my team. These efforts included not only preparing company products



for year 2000 but also incorporating two newly acquired major companies and their products into the project. My reward? I was rified (reduction in force) in August 2000.

It seems that the successful and effective leadership skills I developed during the life of the four-year Y2K project were not an asset to the company. I actually struggled during the first quarter of 2000 to redeploy my talented and dedicated 13 direct reports. After getting them successfully resituated, I was laid off.

While the job market is screaming for talented help, I find that my successful management of the massive international Y2K effort is considered trivial. After 22 years, I have finally decided to quit contributing to the large paychecks of C-officers and top management. I have changed careers and am self-employed as a realtor.

Leslie L. Schelp | Prudential California Realty | Morgan Hill, Calif.

UNCORKING ASSUMPTIONS

With all due respect to our good friends at Wine.com, they—or Darwin's editors—err in the assumption that a wine merchant can be an effective wine educator. A wine merchant's job is to sell you wine, and consumers understand that the fellow who wants to sell you a product may not be entirely disinterested when he seeks to teach you about that product.

Robin Garr | Owner and Publisher | WineLoversPage.com |
Louisville, Ky.

You are quite right in pointing out that wine merchants are hardly impartial educators. However, consumers frequently rely on the knowledge of salespeople when they shop and are usually savvy enough to understand that, with the information, they're also getting a bit of shine. —The Editors



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WHATEVER

Chris Madden

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Why integration should mean integration.

What you do is hard. Some might even say painful. After all, having to rely on a bunch of so called "best of breed" vendors for IT solutions invariably means you'll end up with a bunch of lame excuses and no small amount of finger pointing. At Qwest, our approach helps us deliver what others merely promise. True integration and total accountability.

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Our approach starts with the Qwest global IP network. It runs over the world's most advanced OC192 fiber-optic, broadband backbone. Integrated into our network architecture are our CyberCentersSM. From these we host our clients' core business applications, including their Web sites. And as one of the nation's largest ASPs, we have the certified software engineers who will optimize your applications to benefit from the speed and reliability of the network.

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Another key part of Qwest's approach to integration is the continuing guidance we provide through our

professional services/consulting division. Some of the smartest tech-savvy people around, who know how to make things work in the real world. It means you'll get the benefits of our advanced technology along with the peace of mind that comes from dealing with people capable of making the seemingly impossible, possible.

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Finally, beyond the practical benefits of Qwest true integration, you'll also gain from the efficiencies of dealing with a single company. One that's responsible for everything from solution design, to implementation, to service, to billing. One that's also happy to put what you expect and what it will deliver in writing. We call it the Qwest Service Level Agreement (SLA), and it's our promise there will be no more finger pointing, no more wrangling about problems, and no more questions about who's responsible for fixing them. We are.

For more on Qwest's unique approach to integration, visit us at qwest.com or call 1 800 RIDE QWEST. Then you can get on with running your business.



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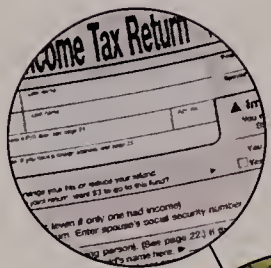
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NEWS, VIEWS AND THE HUM OF BUSINESS

Edited by Todd Datz



The Darwin Meter

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Cholesterol-lowering drugs	Fear of a 32 oz. porterhouse
Shaq/Kobe conflict	Phil Jackson's mystique
Layoffs at (gasp!) Dell	The future of PCs
Online matchmaking sites	Saying how you met your date
Jeep Liberty	Jeep Cherokee

Girls Are from Venus; High-Tech Is from Mars

TEEN SURVEY High-tech corporate America has an image problem, at least in the eyes of teenage girls. Not only are girls more likely than boys to nix the idea of working for large corporations, but they are much less interested in computer science careers, according to a recent Arthur Andersen survey of 650 15- to 18-year-old boys and girls.

The teenage girls say they would rather pursue careers in small business or public service than climb the corporate ladder. Boys were twice as likely as girls to say they would consider being the CEO of a high-tech company and five times as likely to choose computer science as a major in college. Yet girls were more inclined than boys to view themselves as leaders both now and in the future.

"What this survey shows is that girls define success somewhat differently than boys," says **Judy B. Rosener**, professor in the Graduate School of Management at the University of California in Irvine. "They don't feel that being a leader means making money and having a big title. They seem more interested in helping others, and they want to go into more traditional female occupations like health and education."

These results augur ill for corporations facing the tightest labor market the United States has seen in 40 years. "By 2003, there's going to be more baby boomers leaving the workforce than young people entering it," says **Karen Kurek**, the partner in



charge of Arthur Andersen's Growth and Retention of Women (GROW) program, which commissioned the recent survey. "Corporate America needs to do more to reach out to young women and retain and advance the women already in their organizations."

Some companies have spearheaded novel approaches to this kind of outreach; Arthur Andersen is sponsoring a program in New York City that exposes high school girls to technology and female role models in high-ranking positions. But even well-meaning corporations can unwittingly create an impression that women are not wanted. Technology vendors have been known to feature scantily clad females in their advertising, a practice that could discourage women from applying for open positions at such companies.

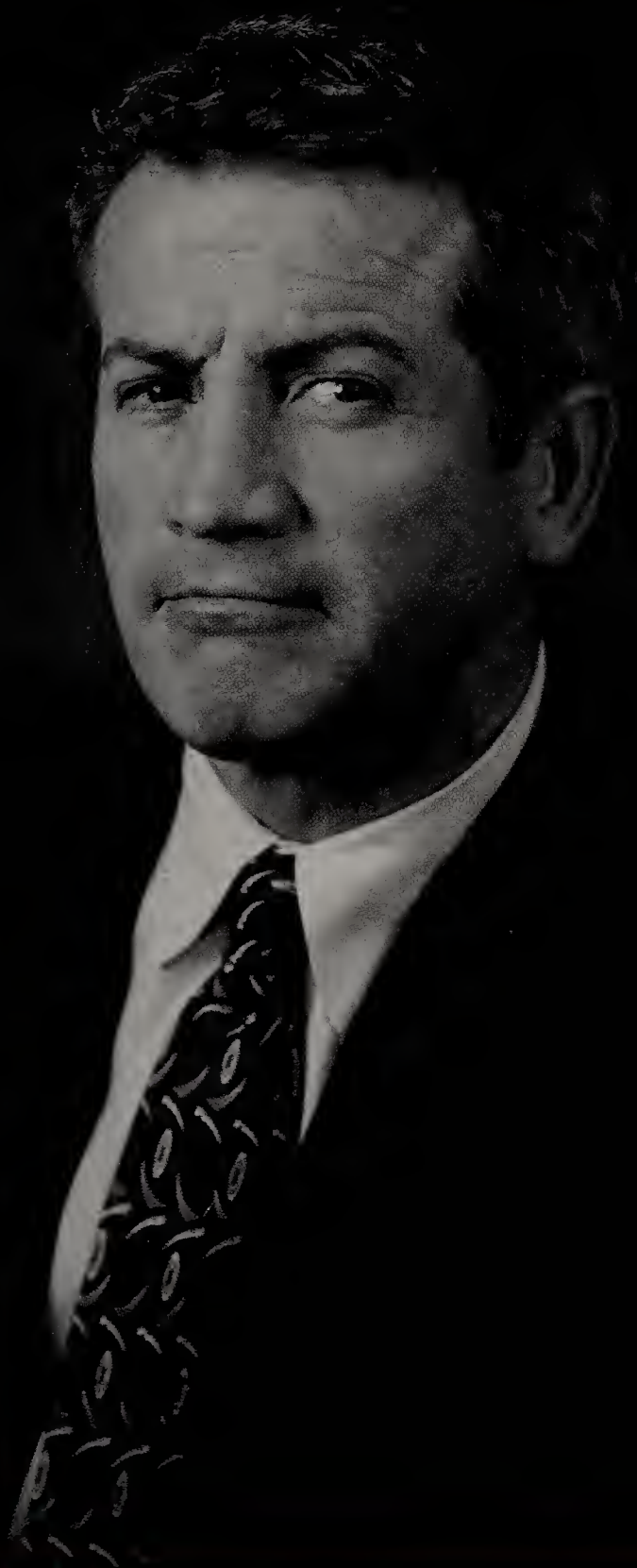
"I use ads like these when I talk to companies to show them what they're doing wrong," Rosener says. "Unfortunately, a lot of them don't get it."

—Alison Bass

ILLUSTRATION BY KERI SMITH, PHOTOS BY VITO ALUIA

"When will the computers be ready for the new people?"

Translation: I think I forgot to tell you about the new people.



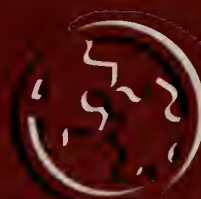
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ANITA RODDICK dirties her hands more than most business owners. As founder and CEO of The Body Shop, the Littlehampton, U.K.-based purveyor of cosmetics and toiletries, Roddick has hung out with tobacco workers in Mexico, World Trade Organization protesters in Seattle and butter makers in Ghana, all the while struggling to walk the line between profitability and social consciousness. In her new book, *Business as Unusual*, Roddick details the past decade in the life of a company that donates a significant percentage of its profits to social causes.

Darwin: For readers who might not be familiar with The Body Shop's guiding principles and values, can you offer a summary?

We're an international retailer of skin and hair products with nearly 2,000 shops in 50 countries. We've been around for 24 years. It's a business that's dedicated to social change and human rights. It's a company that espouses an ecological way of doing business. We campaign on human rights, and we turn our shops into action stations [people can sign petitions in the shops, for example].

What made you decide to write the book?

The past 10 years at The Body Shop have been like a minefield.

We've gone from having to defend our reputation in the highest courts of London to fighting Shell. I wanted to tell my story of being at the heart of it. I wanted it to be told with intimacy because The Body Shop is such a part of who I am. I actually wanted to title it *Management Falling Apart at the Seams*, but that was too depressing.

You've traveled all around the world and spent time with people from all walks of life. Do you believe that all business executives would benefit from such experiences?

I do, if they're in a global economy. I don't think you can run a company from the hallowed halls of a middle-class executive room. You need to see how your products are interpreted. Why don't more executives do this? I don't know. Lack of imagination. They just sit and work out the finances and the money instead of finding out what the world needs and what is right. As executives, we have to deal with spiritual poverty and poverty of imagination. The modern age is unique in that economics is allowed to override every other value. Yet every action you do affects millions of people.

Is there any way for today's new companies to have values that go beyond driving up their stock prices?

I look at these startups and ask, "Why aren't they shaped with the same disciplines as established companies?" Their profligacy is obscene. It's obscene how much is raised and how much is spent, but it's legitimized. God help us if an old-world company acts that way. These new companies have got to secure the standards of discipline. They could be a little more frugal. They could learn a lot from old companies.

Are there other companies that espouse values you think are similar to The Body Shop's values?

I love Patagonia. I bloody love it. I love Ben & Jerry's and what they stood for.

I love all these socially responsible companies that came out of the '60s. It's the behavior of companies that impresses me, the way they keep lifelong learning going on in the company. The way they value their employees. There are some lovely companies out there that have dedicated themselves to something other than profits.

—Meg Mitchell Moore



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When Your Site's Been Breached, Go Public

CREDIT RIP-OFF Your e-commerce site is humming right along. New customers arrive daily, products hit the mail, profits roll in. Then your CIO appears at the door and mumbles, "A hacker just broke in to our site."

For several companies during the past year, that nightmare scenario has been a frightful reality. Both America Online and search service RealNames reported last year that hackers may have collected members' credit card numbers. Egghead.com spent several nervous weeks investigating a hacking attempt before it determined that no card numbers had been taken from its site. But perhaps the worst case happened to Los Angeles-based online credit card processor CreditCards.com (recently renamed iPayment Technologies), which had between 30,000 and 35,000 card numbers stolen by a hacker late last year. Worse, some of those numbers—including mine—were later used to make phone calls to Russia, forcing credit card companies to cancel the cards to prevent further fraud.

For corporate executives, the Egghead.com and Credit Cards.com examples provide

important lessons on what to do should a hacker invade your company. The best advice is to assess the problem quickly and let your customers know as soon as possible that there may be a security breach. CreditCards.com took heat from both the press and customers for waiting months before informing anyone that its systems had been compromised.

Egghead.com, an e-tailer based in Menlo Park, Calif., took a different approach. When a hacker appeared to have made it through the site's security systems just before last Christmas, the company

quickly issued a letter to its customers acknowledging the possible infiltration and telling them that they would receive more information as soon as it was available. After a two-week inquiry, Egghead.com issued another letter reassuring customers that no numbers had been stolen and explaining that further security measures were being put into place.

"You have a duty to your customers and shareholders to let them know the potential gravity of the situation so they can take the necessary precautions," says Egghead.com CEO **Jeff Sheahan**. And when it comes to creating and testing your security systems, don't trust just yourself—bring in outside experts who can help find holes your own teams may miss, he says. When you're playing with other people's money, it pays to play it safe.

—Christopher Lindquist

ONLINE SAFETY TIPS

Your company may be safe from the rampaging hordes of hackers (it is, right?), but what about the places where you shop online? The Federal Trade Commission's Bureau of Consumer Protection offers several suggestions to keep your private information private.

Buy from vendors that you know and trust. Making purchases from unknown sites—particularly those touted in unsolicited e-mails—is asking for trouble.

Look for sites that post their privacy policies openly—and read them. These policies explain exactly what the site can and cannot do with your information.

Don't buy from vendors that request too much personal info. Your credit card and shipping information should be sufficient to complete the transaction.

If you think you've been taken advantage of, file a complaint. You can report fraudulent online activity on the FTC's website (www.ftc.gov) or call 877 382-4357.

A black and white photograph of a craftsman working on a wooden boat hull in a workshop. The craftsman is in the foreground, focused on his work. In the background, there is a large window with multiple panes, and various tools and materials are visible on a workbench.

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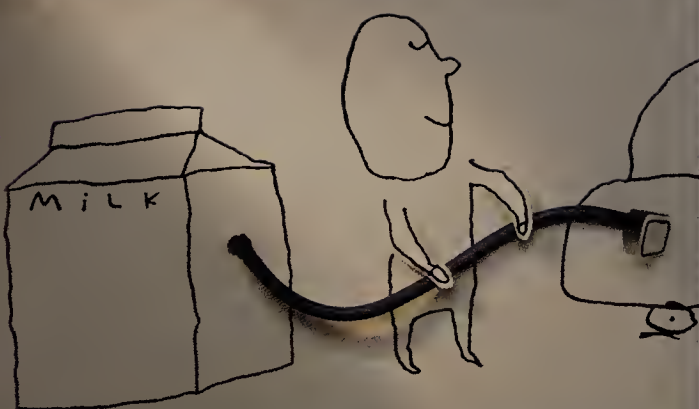
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Gas 'n' Get Info

PUMP IT UP While European wireless companies shell out a combined \$3 billion to build an ambitious new wireless network on the scale of, say, the Imperial Death Star, a San Jose, Calif.-based digital content provider called Ten Square has improvised a digital network through creative partnerships and existing infrastructure at, oh, about one one-hundredth of the cost.

Its goal is a point-of-service content system. By partnering with the owners of such hot spots as ATMs, gas pumps and kiosks—all with large digital displays and many customers—the Ten Square Digital Network provides digital content while people transact their business. Among the planned content types: coupons, lottery tickets, maps, news, event tickets, traf-



fic and weather reports, and community-service announcements (what Ten Square CEO **Scott Slinker** calls "digital milk cartons").

"The strategy," says Slinker, "is to have a democracy of access." To that end, Ten Square's partnerships with the three primary providers of gas pumps (Dresser Wayne, Marconi and Tokheim) give the company—and its other content partners—access to 100 percent of the infrastructure that already exists in the petroleum convenience store industry. That's 175,491 stores pushing 42.5 billion transactions per year.

Already in use in Atlanta and New Orleans, the network will be available in 23 major metropolitan areas at 5,000 sites by the end of 2001.

—Joe Sullivan

buzz

Protest Greets World Bank Portal

HIGH-TECH DEVELOPMENT

Sometimes technology projects arise in a context of highly charged geopolitical controversy. Consider The World Bank, which invests in economic initiatives in the developing world. The bank has come under fire for an ambitious Internet project: a \$60 million Web portal intended to provide information and support for economic development constituents worldwide. The opposition comes from citizens' groups, aid agency workers, academics and watchdog groups that are questioning the independence and design of the site, called the Global Development Gateway (www.worldbank.org/gateway). The portal, which launched last September and is scheduled to be fully deployed by this summer, allows users to share information, resources and tools on development challenges from the grass roots up.

But a coalition of critics accuses the project of being overly ambitious and raises concerns that the Global Development Gateway could undermine the missions of other economic development websites. (Portals, by their very nature, generally aspire to be comprehensive one-stop shops for their large target audiences.) The watchdog coalition—led by the Bretton Woods Project, which monitors World Bank and International Monetary Fund projects—also charges that the portal's editorial independence is

questionable and that The World Bank failed to consult with appropriate stakeholders during the Internet project's design and scope.

"Development issues are complex and controversial, so producing a global supersite that claims to include all views is neither feasible nor desirable," says **Alex Wilks**, the U.K.-based coordinator of the Bretton Woods Project. Wilks faults The World Bank for failing to respond to the criticisms—some of them coming from within.

But **Gerhard Pohl**, who heads business development and regional operations for the gateway, says the bank welcomes criticism and suggestions. "We were a little misunderstood in Prague [the site of The World Bank annual meeting in September 2000], where the perception was that the gateway was very top-down and World Bank driven," he says. "That may have been the result of having only a few months to prepare a prototype for the meeting. But the people who are really engaged on the ground in development are working very closely with us. We're taking 18 months to get this thing up. [World Bank President James] Wolfensohn is adamant about having a very independent editorial board consisting of eminent people who have [enough] status to ensure to the world that we will be independent and not be pressured."

By July, the bank aims to have 90 percent of all known development projects posted on the portal, creat-

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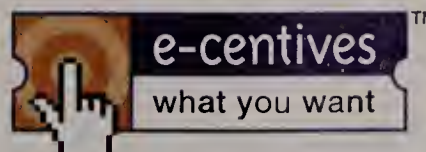
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ing a valuable central repository of current activity. Pohl says that enabling this added "transparency in the market" will reassure the community of private organizations that contribute funding to such projects.

Moreover, says Pohl, "[the site] is not limited to knowledge sharing; we could also do a lot of market-creating initiatives and equipment exchange—even an employment exchange." As a hypothetical example, Pohl envisions "a kind of eBay in Ukraine for municipal equipment."

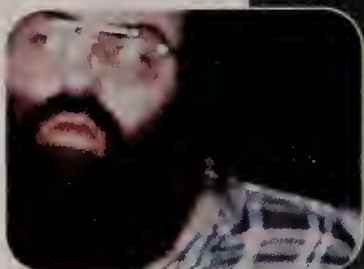
The gateway platform was built on open-source software developed by ArsDigita Community System; the software is available free of charge.

—Cheryl Bentsen

Looking for Mr. Executive

Executive search company Christian & Timbers reports that it performed **52%** more searches in 2000 than in 1999. Its Silicon Valley searches increased **70%**. Massachusetts' Route 128 searches were up **38%**.

Violence in the Office



WORK MEETS STRESS When a software tester went on a rampage at a Wakefield, Mass., high-tech company last December, allegedly killing seven of his colleagues, employees reacted with understandable shock. The accused gunman had seemed a bit odd, according to some of his workmates at Internet consultancy Edgewater Technology, but he never came across as violent. They should have looked harder, some workplace experts say.

As stress in the workplace intensifies, companies are turning to such experts to try to weed out potentially violent job applicants and identify troubled employees. While consultants and experts differ on how best to screen applicants, they do agree that workplace violence can be prevented. "There are always warning signs," says **Mark Braverman**, principal at CMG Associates, a consultancy in Newton, Mass., and author of *Preventing Workplace Violence*. "I like it when companies call me and say, 'We have someone here who we are concerned about,' not 'We just fired someone, and we're afraid he's going to come back and kill us.'"

Violence on the job isn't new. "It cuts across industries and time," says **Michael McIntyre**, professor of industrial psychology at the University of Tennessee's

College of Business in Knoxville. Still, recent studies show that verbal and physical assaults at work are on the rise. Integra Realty Resources, a real estate consulting company in New York City, found in a recent survey of 1,305 adults that 42 percent of office workers had been involved in shouting matches at work. McIntyre and colleague **Larry James** have developed a 25-question reasoning test they say can help fight "desk rage" by identifying potentially hostile workers. Preliminary research shows that those who scored high on the test have a "high probability of getting in trouble on the job," McIntyre says.

Such tests may be effective, but they can expose companies to law suits, counters **Lynne McClure**, president of Phoenix-based McClure Associates, which specializes in high-risk employee behavior. Instead of written tests, McClure advocates screening candidates using eight high-risk behavior categories. Examples of actions that fall into these categories would be if a job applicant gets angry while describing an event from previous workplaces or exhibits poor personal hygiene. Braverman, however, says it's nearly impossible to predict human behavior and companies should focus on creating positive work environments. "The big problem is that workplaces can be extremely stressful, and people feel resentful and isolated," Braverman says. "Workplace violence is a leadership issue. The trick is to foster communication and to have a good safety net for those folks who need help."

—Susannah Patton

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The New Money

The electronic payment systems of the future will focus on customer loyalty and convenience



ON A MEMORABLE FRIDAY NIGHT IN 1999, I watched a brand-new form of payment get invented.

A group of us were sitting in a pub on Babson College's campus in Wellesley, Mass., having a few beers with J.S.G. Boggs, an artist who had just given a guest lecture. One of Boggs' long-running projects has been creating highly realistic, actual-size drawings of American currency and then spending them. He will go to the hardware store to buy a fan, for example, and when it comes time to pay, he offers the merchant his drawing of a \$100 bill in lieu of an actual \$100 bill. If the seller is game—and a surprising number are—he accepts the art, values it at \$100, and gives Boggs the fan, the correct change in legal tender and a receipt.

At the pub, we were hoping to watch Boggs spend some art. There was a buzz in the room as we racked up a tab and waited for the moment when Boggs would approach the bartender.

When he did, a crowd gathered. Boggs offered James, the college student tending bar, an original drawing of a \$50 bill to cover his portion of the tab. The student thought for a while but decided not to accept it. Boggs agreed to pay the tab with conventional money but asked if he could buy just one beer with some of his art. This time he offered to sign and date several pictures of his work—\$1 bills—that had appeared in the school newspaper.

James thought about it. His manager showed up, glowered at the assembled group and told James he'd be breaking the rules if he took Boggs' bills. So James decided to put his own money into the till to cover Boggs' beer and accept the cutout newsprint bills as art. Everyone around the bar applauded the successful transaction.

Devising new forms of digital payment has been a much more formidable endeavor. While Boggs has single-handedly been able to create a new form of currency and spend it freely on meals, rent and even a motorcycle, companies that have tried to change the way the rest of us pay for things and the way companies accept digital payments have failed miserably.

Lately I've been wondering whether we'll ever see innovation take hold in the world of digital payments, what it will mean for consumers and businesses, and whether new ways of buying and selling will displace any of the entrenched major players, such as MasterCard and Visa.

One benefit to adopting new, more convenient forms of electronic payment is that they can intensify customer loyalty. I've been using Mobil's Speedpass system for three years. Before I enrolled in the free program, I gravitated toward the nearest or cheapest gas station. Now, in return for the convenience of being able to wave a little plastic tag at the pump and instantly start gassing up, not only have I been loyal to Mobil for more than 95 percent of my gas purchases, but I have also agreed to give the company a bit of demographic information.

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ecosystem

The Speedpass tag, linked to a credit card, is also being tested as a form of payment at nine McDonald's restaurants near Chicago. It can be used inside or at the drive-thru, allowing fast foodies to use something other than cash at the golden arches for the first time. You can imagine Speedpass penetrating other places you breeze in and out of during the course of a day: coffee shop, dry cleaner, newsstand.

Even more promising than Speedpass is a vision that Palm and VeriFone, a maker of credit card terminals, are pursuing. Think of your PDA as a wallet that could be used as a form of payment at any bricks-and-mortar retailer that uses a VeriFone terminal. Perhaps you've

deeper relationships with customers. PDA or wireless phone transactions could involve electronic coupons or a voluntary disclosure of demographic information in return for a discount. Customers who habitually used a Speedpass or PDA could be tracked, which creates some privacy concerns but would allow a merchant to find out how often customers shop and how much they buy—data that is hard to collect today.

Will the established links in the payment chain remain in place? All signs point to yes. A number of companies have tried to devise forms of digital cash or enable consumers to engage in micropayments that didn't involve credit card issuers or clearinghouses.

You'll soon use your wireless phone to buy a newspaper and your cable box to order and pay for pizza.

clipped a coupon on the Web that's good for 15 percent off from Hertz. When you sync your Palm, you store the coupon on the device. Your Palm then beams that coupon to the VeriFone terminal at the rental counter. Hertz gives you the discounted rate and beams back a receipt that can be filed in your expense account application.

Hertz may also allow you to download e-mail and new appointments from your corporate network to your Palm—all while you're standing at the counter—charging an additional fee for the service or offering it free to develop a stronger bond with you.

Some people are skeptical that Palm and VeriFone's vision will materialize. "Carrying around a big old Palm in order to pay is much more inconvenient than carrying your wallet," says Paul R. Hagen, a senior analyst at Forrester Research in Cambridge, Mass. But even Hagen concedes, "we will probably move in that direction eventually."

One of the biggest barriers to the adoption of new forms of payment is that people are, in general, pretty content using cash, checks and credit cards. But I see a hidden benefit in the PDA-wallet notion, after recently losing a credit card at Macy's when a clerk forgot to return it. When you beam your number to the register, your "card" never leaves your possession, and the clerk will most likely never even see your credit card number.

It's not likely that businesses using these new payment systems would reduce operating costs; if anything, the new systems could add to the price of credit card terminals or increase the fees credit card companies charge. But businesses would be able to cultivate

Most quickly ran out of steam. The systems were too hard to set up and too complicated to use, according to Steve Crocker, one of the founders of CyberCash in Reston, Va., and now CEO of Longitude Systems in Chantilly, Va. Too few online merchants accepted currency like CyberCash's CyberCoin—which no longer exists—and too few consumers were eager to use micropayments.

But even if it does prove difficult to displace the card issuers and clearinghouses, that doesn't mean that new kinds of digital payment won't crop up. My bet is that you'll soon use your wireless phone to buy a newspaper and your cable box to order and pay for pizza, and your E-ZPass automated toll payment system not just for turnpike tolls but for parking meters and garage fees too. "These things are a fantasy today, but over the next few years, you'll suddenly realize that you're paying for things in all sorts of new ways," says Chase Franklin, CEO of Qpass, a digital payment company in Seattle.

Back at Babson, before the evening ended, Boggs complimented me on my black leather jacket. For a brief moment, I wondered whether he might offer to buy it off my back with some of his art. He didn't, mostly because it's not characteristic of him to do Monty Hall-ish deals with individuals.

Boggs, if you're reading this and you still need a jacket, send me some art! 

Scott Kirsner is a Boston-based writer who wonders why his car's Fast Lane tag doesn't yet work at toll booths in Maine. Contact him at kirsner@att.net. Send column feedback to ecosystem@darwinmag.com.

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JUST AS MUTTS AND CORN SEEDS ARE MADE stronger by their crazy quilt heritages, electronic devices show their strength in the number of different ways they are broken up and recombined with other gadgets. Radios and TVs started as furniture but have become ubiquitous—crammed into cars, microwaves, computers and portable stereos. Likewise, computers are leaping off desktops and into other devices like PDAs (personal digital assistants) and mobile phones.

But phones are going to become more ubiquitous and much more important than those other gadgets. The next wave of growth of electronic commerce will come on the back of the phone. Phones are a much better medium for human communication—voice to voice in synchronous time. Make no mistake about why people want phones in their PDAs, for example—they make better, smarter phones than their cell phones do.

“Phoneness” will be part of everything and come in

every form imaginable—from key chains with phones built into them, to PDAs, to Happy Meals with free phones you can use to call your favorite Disney character.

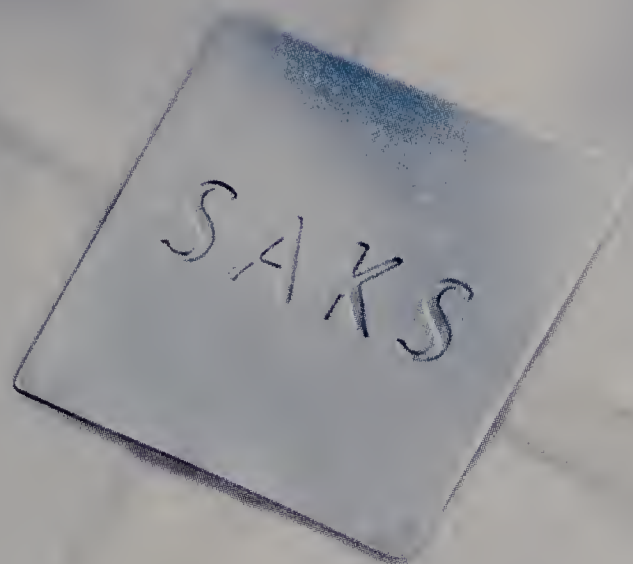
Not interested in how Mickey’s day went? The gadgets aren’t nearly as important as the potential lurking beneath them. Customers like to be connected. The more often customers talk to you (willingly), the less likely they are to defect to a competitor. Diamond-Cluster International found that when the number of interactions with customers increases from 12 to 24, to 36 to 60, the defection rate of the cell phone customer drops from 13.9 percent to 7.8 percent. Financial services companies have found similar effects. The overall imperative is to get your customer talking to you and talking to you often. Multiple interactions will be beneficial to retention.

Phones will open an exponentially larger and more intensive time window for doing business when they combine computing power with the phone’s ubiquity and “onness.” Unlike the computer, the phone is always available, always running. The psychology of buying and selling is totally different when people have a device with them that is always live.

Infrastructure to Go

Consider too that the infrastructure for doing business on the phone is already well established. No other industry has the capability to bill for so many different kinds of services right down to the individual level. The Internet doesn’t come close. You might have a relationship with Yahoo, which knows your e-mail and some basic facts about you, but for every commercial transaction you have with Yahoo, you need to break out your credit card. When you are on your phone, the company knows who you are, where you live, even with whom you are talking. That is a much more powerful knowledge base.

Just as important, phone customers are used to getting these bills and paying them. Adding services to the



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virtual vantage

bill and getting customers to pay for them is much less of a challenge in this context than it is on the Internet. Think about how difficult it has been for Internet merchants to get customers to pay for new services. They have had to fight tooth and nail to build up customer loyalty to the point where they can extract a few measly dollars out of the relationship.

If phones—even cell phones—seem low-tech next to computers, remember that the economics and sophistication of computing technology are converging to the point where, in the not-too-distant future, we will have portable phones every bit as powerful as a workstation of today, with many digital versions of consumer electronic functionality and capability.

known as ARPU) and the desire of a Fidelity to increase customer touch points and decrease churn.

Furthermore, many senior executives at phone companies are facing steep expectations by their investors to grow their businesses. The ability to partner with strong content providers can provide significant advantage if they are open to exploring how new content is complementary to phone storage and usage. The stakes are enormous.

For nontelecommunications executives, the opportunity is to become more conversational with your customer and begin a deeper, everywhere, always-on type of relationship. First, and most urgently, major companies now have the opportunity to cut deals with the

The cellular connection brings with it an expectation of immediacy and urgency. Don't make it voice mail hell.

We also know that the evolution of the phone will look like the evolution of the personal computer. The personal computer took off when the components became generic and interchangeable, dramatically increasing the software developers' audience. New low-power consumption processors and a gradual standardization of phone components will bring the same kind of software explosion to phones.

Do You DoCoMo?

We don't have to wait to see how the business models behind these new gadgets will work. In Japan, NTT's DoCoMo customers are being billed for micro-transactions involving fractions of a yen to read investment information or feed their digital Tamaguchi pets. In Scandinavia, the coming pervasiveness of the digital phone is already evident—people there give out their cell phone number as their primary number. European instant phone message traffic is already higher than the total voice traffic of most individual countries.

So if you're worried about having missed the Internet revolution, don't worry, you can still get in on the phone revolution—if you learn how to get close to your phone company. For example, large mutual fund/brokerage houses, like Fidelity, that have been pioneers in the use of wireless technology can be great partners for telecommunications providers. There is a fantastic synergy between the needs of the phone companies that must increase their average revenue per use (fondly

major phone companies for placement of their product or service. For any company in a business-to-consumer space this is the time to be pursuing such partnerships and experiments.

But if these experiments are to go anywhere, the phone companies and the companies that create the mobile connections with customers will have to avoid making these services just another circle of voice mail hell. The cellular connection brings with it an expectation of immediacy and urgency, and if it becomes just another channel for hold Muzak, it could turn away more customers than it adds.

The Bottom Line

This is a chance to catch up if you missed the Internet wave. If you caught the wave, you can make your lead even bigger. You need to support mobile technology to serve customers right now, not tomorrow. Each customer can be catered to individually since everyone has a mobile phone. Even without the bells and whistles promised, today's mobile technology is better at forging and maintaining customer relationships than asynchronous alternatives. And prices keep dropping for the technology while the potential for charging for—and tracking—all kinds of transactions increases. ■

Have you taken advantage of the phone revolution? E-mail John Sviokla at virtualvantage@darwinmag.com. He is vice chairman of Diamond-Cluster International, a Chicago-based technology consulting company.



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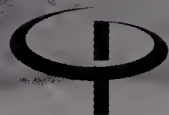
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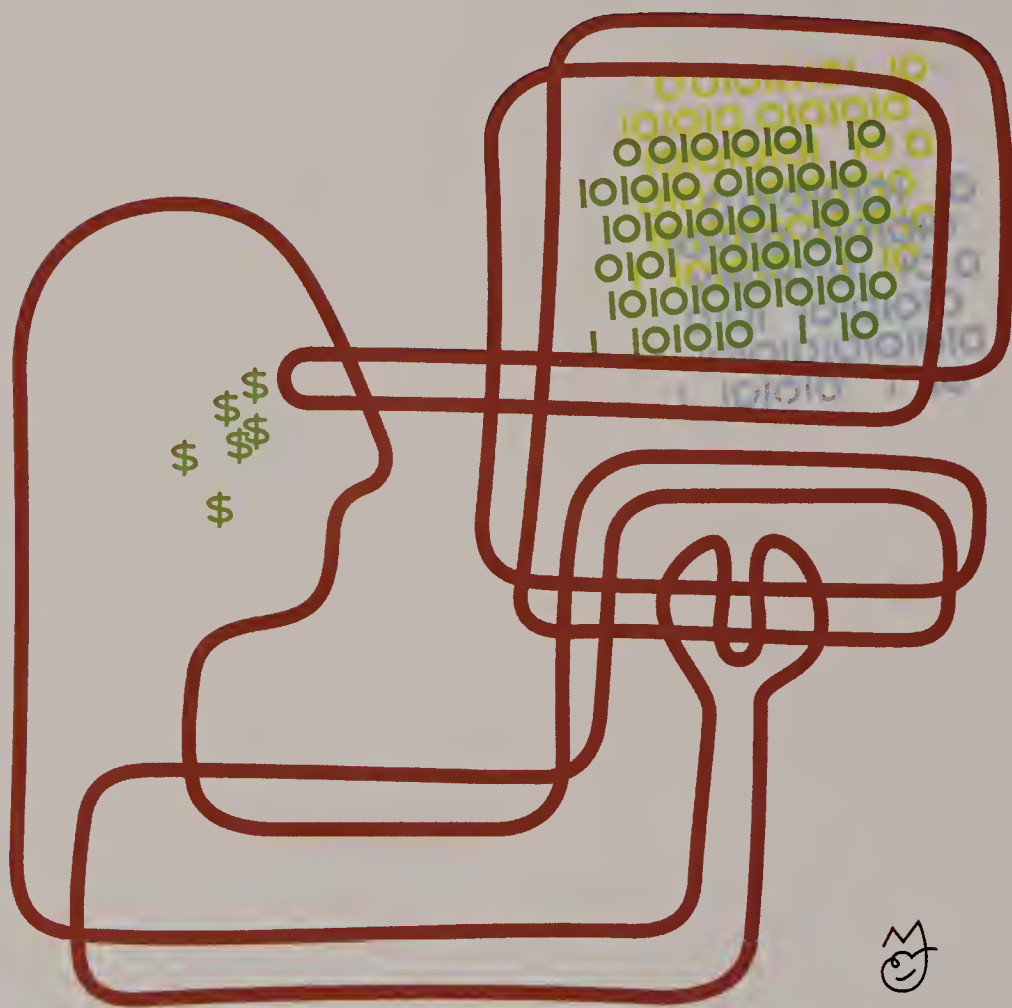
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Piping Hot

SI Ventures wrenches profits from the unsexy realm of infrastructure—the plumbing that runs the Internet



REMEMBER COSMO, THE MIDDLE-AGE HUSBAND

in the 1987 film *Moonstruck*? He was a dumpy little man who wore glasses and had been married for 40 million years. He was also the guy who could afford to own an entire brownstone in Brooklyn Heights. Why? Because Cosmo was a plumber—a perhaps boring but very essential kind of guy.

That's the reputation of plumbing in general—boring but essential—even the kind that powers e-commerce. There we call it infrastructure, but it's every bit as vital. Just ask N. Adam Rin of SI Ventures.

Rin is a managing director at the Fort Myers, Fla.-based VC firm that specializes in Internet infrastructure companies. During the past year, which has seen untold numbers of dotcom ventures plummet from high-flying IPO to fast-dying business failure, SI Ven-

tures has posted impressive returns on all its funds.

Rin says that when the company was choosing start-ups to include in its second venture capital fund, a \$113 million deal that closed October 1999, it didn't really look at dotcoms. "Our focus has been on software and networking infrastructure, because infrastructure is going to be the prerequisite of any progress on the Internet. Real technology, not just a hare-brained business idea," he says. "Infrastructure is the foundation for any application of the future." In other words, you could have the coolest e-commerce business model on the planet, but it won't do a lick of good if there aren't any good electronic pipes to carry it.

So what kind of technology would he classify under the Internet infrastructure heading? Naturally, there are subspecies to this technological beast. Privacy, digital rights, mobile access—all are Internet development challenges that good plumbing can help to solve. SI has invested in companies in each of these sectors.

Rin names some examples in various categories of infrastructure technology.

Security. "Any technology that improves security is vital," he says. Examples: TruSecure, which makes software that assesses and certifies corporate security capabilities; Authentor Systems, which makes authentication software that works on just about any security device, "whether a company wants to use smart cards, retina checking or fingerprints."

Digital rights. By this, Rin means the ability to securely and legally promote and deliver digital content, whether it be publications, images or books. "There will be a huge opportunity during the next five years for publications to distribute content over the Internet," he says. SI has invested in Maynard, Mass.-based Digital Goods, which makes software that helps with the marketing of digital content; and San Jose, Calif.-based Vyou.com, which creates technology that helps websites with content access control (for example, determining whether a visitor can copy and paste or print out the site's content).

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Mobile access. As the workforce hits the road, these technologies will make mobile computing easier and more productive. For example, an outfit called Mobilize in Colorado Springs, Colo., offers mobile application services that allow workers to do business outside

the office. Cognet, another SI investment, based in Valhalla, N.Y., builds technology that helps audit, distribute and manage software upgrades to computers and mobile devices.

The Gartner Connection

SI has another big reason to concentrate on emerging technologies rather than dotcoms. The company spun off from technology research giant Gartner in 1998 and maintains close ties with its Stamford, Conn.-based progenitor. Rin, in fact, is the former head of Gartner's worldwide research and advisory services, while SI cofounders Manny Fernandez and John Halligan were Gartner's CEO and CFO, respectively. SI's first fund of \$20 million was entirely Gartner money; and \$30 mil-

lion of Fund II is from Gartner as well. The organizations also trade knowledge. Rin still works out of an office in Gartner's headquarters and draws heavily on the expertise of Gartner's 1,400 analysts. "We're unique among VC firms in our access to

"Our focus has been on software and networking infrastructure, because infrastructure is going to be the prerequisite of any progress on the Internet."

-N. ADAM RIN, MANAGING DIRECTOR, SI VENTURES

analysts and Gartner research," he says. Analysts send leads, business plans and the names of startups to SI. "We've had a number of introductions and opportunities from Gartner analysts," says Rin. "At least three of the opportunities we invested in came from Gartner referrals."

One hand washes the other. Analysts benefit from passing on these tips, because a percentage of SI ventures' profits is put into a blind pool that supplements analyst bonuses. Gartner analysts also help with due diligence on prospective investment opportunities. SI will share business plans with an appropriate Gartner analyst and get opinions on such issues as the strength of a particular market sector, how fast it will grow and who composes the prospective competition. "Our Gartner connection is a real differentiator for us," says Rin.

SI also tends to stay away from Silicon Valley when it makes investments, sticking mainly to East Coast startups. It has 26 companies in Fund II; four companies have gone public, while several others have tabled IPO plans until market conditions improve. Others are in early to midstage development and won't mature for two or three years.

That's fine by Rin, who says that he and his partners are in it for the long haul. The internal rate of return on the first fund was 183 percent, and Rin says that the early returns on the second fund also look promising. "We never believed in flipping companies quickly; 1999 was a temporary aberration in VC history," he says.

"You have to have lots of diligence, patience and old-fashioned hard work in this business." ■

SI VENTURES

HEADQUARTERS Fort Myers, Fla.

EMPLOYEES 10

INVESTORS Gartner, institutions and individuals

TARGET Investments in early to midstage Internet infrastructure technology companies

FUND I \$20 million

FUND II \$113 million

FUND III \$150 million to \$250 million, to be raised early 2001

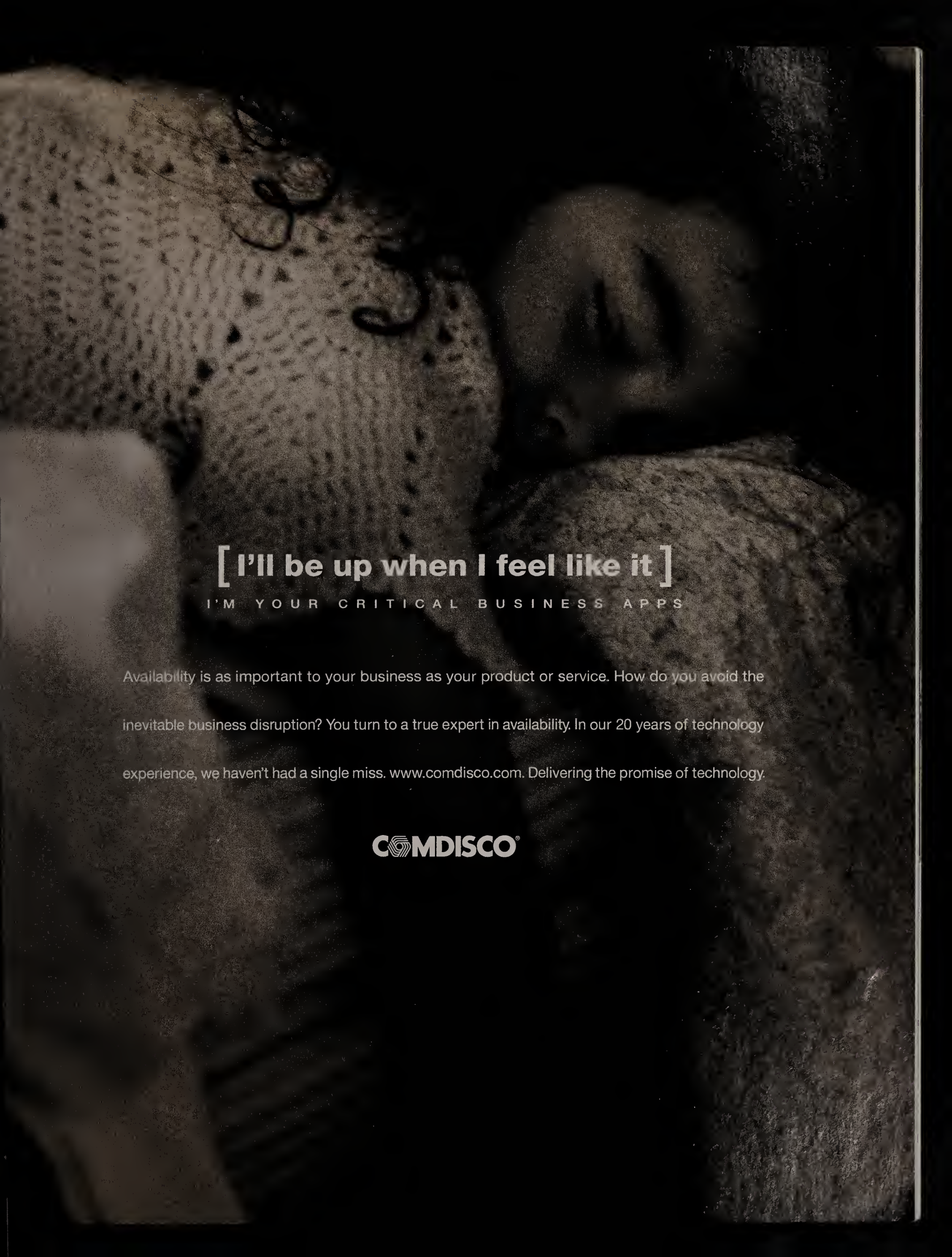
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Carol Hildebrand is a senior editor at *Darwin* and covers venture capital. Send any ideas to her at cjh@darwinmag.com.

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When Bad Things Happen to Good Ideas

Knowledge management is a solid concept that fell in with the wrong company. Software companies, to be precise.

BY ERIC BERKMAN



IT'S A GORGEOUS EARLY FALL day in northern California, but you'd never know it on the air-conditioned expo floor at the Santa Clara Convention Center.

The KMWorld2000 trade show constitutes a full frontal assault on the senses: software vendors sporting corporate-logoed golf shirts pounce from all directions, promising knowledge management nirvana. All you need to do is spend megabucks to install their portal-vortal-intranet-extranet-search-engine-interactive-collaborative-commerce e-solution. Bob Armacost, director of internal knowledge management at Bain and Co., likens it to the swarms of souvenir hawkers who greet incoming boats of tourists. "You go to one of these shows and you feel like you're stepping off a cruise ship in the Bahamas," he says. Unfortunately, this is knowledge management (KM) today—a good idea gone awry. KM has fallen victim to a mixture of bad implementation practices and software vendors eager to turn a complex process into a pure technology play. The result: Like many a business concept, KM has evolved from a hot buzzword to a phrase that now evokes more skepticism than enthusiasm.

KNOWLEDGE MANAGEMENT REVOLVES AROUND the concept that one of the most valuable corporate assets is the experience and expertise floating around inside employees' heads. In order to manage this intellectual capital, executives must devise a way to capture and share that knowledge with coworkers. If done right, KM is supposed to create a more collaborative environment, cut down on duplication of effort and encourage knowledge sharing—saving time and money in the process. The problem is, in many cases KM devolved into a purely technical process, resulting in expensive software implementations sitting unused by oblivious, fearful or resentful employees.

Larry Prusak, executive director of IBM's Institute for Knowledge Management, says he's observed about 220 KM implementations and at least half have been "deeply suboptimized" because it was easier and faster to just buy technology than think through the strategic issues. For example, Prusak tells of a global financial services company that spent six years and nearly \$1 billion on a KM project to improve the productivity of its financial planners. It was purely a technological exercise, and the company has gained almost no return on investment. He also cites Nynex, the telecom company that has since merged with Bell Atlantic to form Verizon. The company, says Prusak, wasted tens of millions of dollars trying to build a system that would store the expert knowledge of its most valuable employees. The trouble was, the systems couldn't reproduce the prob-

lem-solving processes of its experts. "[Nynex] didn't think through what an expert knows and why they're experts in the first place," says Prusak.

Not surprisingly, KM has gained a dubious reputation among many business executives, industry analysts and even KM industry insiders. At worst, they say, KM has been a total bust; at best, it hasn't lived up to the considerable hoopla surrounding it. "There's a fair amount of perception out there in the marketplace that knowledge management has set very high expectations for itself, which it hasn't met over the last couple of years," says Andy Michuda, CEO of Sopheon Teltech, a KM and software consultancy based in Minneapolis.

Is this perception correct? Well, the answer is more complicated than a simple yes or no. The key is how individual companies approach KM—and many simply have the approach wrong. The big mistake is falling prey to vendors' claims that if you just buy the right search engine, portal or intranet, voilà, you'll have knowledge management. Technology is only a small part of what's overwhelmingly a cultural endeavor, experts say. Before you even touch issues of technology, you need to figure out what types of knowledge your employees need to share and how to coax them into sharing. If you lead with technology, "KM is a bust" will be a self-fulfilling prophecy.

But this doesn't mean KM is a worthless concept. There are real business reasons—like increased productivity, worker collaboration and shorter product development cycles—to keep track of who knows what. Thus, experts predict that KM practices won't go away; rather, they may become embedded in other disciplines, such as customer relationship management or enterprise resource planning. As long as the process lives on, it's really a victory for KM's legitimacy.

Tom Davenport, director of Accenture's Institute for Strategic Change in Wellesley, Mass., (and *Darwin* columnist), likens KM to total quality management, which was all the rage in the early 1990s. Although TQM isn't mentioned much these days, it has become incorporated into the way we think about business, he says. "It would actually be a sign of success if knowledge management got embedded into other things," says Davenport, who has written extensively about the subject. "I'd certainly have no problems with its going into CRM and business intelligence and all the things it might evolve into."

Knowledge Through Time

Knowledge management as a discipline came to the fore around 1994. It sprang from grassroots organizations of business professionals who gathered to discuss the potential benefits of knowledge sharing. In the early days, there were no conferences, but you had to qualify to come to the meetings. The requirements were simple: Prepare a case study you are willing to share with the others. "Huge companies would show up," says Michuda. "We had one session in Atlanta and you'd look around and see 10 people from McKinsey trying to find out what this new market was all about."

Soon leaders like Davenport and Prusak began to write books on the subject, and the hype started to bubble. But as the conferences and books exploded in the late

Know•ledge Man•age•ment

Intellectual capital, or employee knowledge and experience, is a vital corporate asset. KM seeks to best use that asset through knowledge sharing and documentation.



Bob Armacost (top), director of internal knowledge management at Bain and Co., decries the technology circus at KM trade shows. Andy Michuda (bottom), CEO of Sopheon Teltech, remembers when KM equalled Lotus Notes.

ple and human behavior. By this point, however, it was too late. "Working with many customers who have struggled with this concept, I can tell you that [the vendors] have confused a lot of people," says Dan Schimmel, CEO of OneSource Information Services, a content provider in Concord, Mass. According to Schimmel, vendors have made a lot of customers think of KM in terms of working forward from a tool rather than looking at their knowledge needs, figuring out how to solve them and then finding the right tool.

Bill Seidman, CEO of Cerebyte, a KM software company in Lake Oswego, Ore., agrees. If you go around the booths at a show, very few products are focused on human interactions, he points out. "It's mostly techie snake oil. They tell you, 'Enter a keyword and something will happen.' And that something is one of two things. Either they'll find a document for you or they'll go find a human with some sort of profile matching the keyword. But who cares? The information could be out-of-date."

Worse, you could be that human whose profile is matched. "Suddenly everyone is calling you," he says. "Then KM is just a labor-brokering field, only slightly better than what you already have in a corporation."

Meanwhile, says Michuda, the vendors haven't educated the marketplace on what's required to get value from their investment. "I don't know of a vendor out there willing to say, 'This is the business value you'll get, and I'm willing to be compensated based on how much value you'll receive,'" he says. "That's not how the industry works. It's, 'Buy my software and good luck.'"

But how much can you really blame the vendors, asks Davenport, who points out that it's a pretty natural inclination for a software provider to tie software to something it perceives as popular. He says he'd do the same thing. "Is this anything new in human history? Absolutely not."

Davenport has a point. There's another reason behind the less-than-satisfactory results of many KM projects, and a quick look in the boardroom mirror will frequently reflect the culprit. Many senior executives have mistakenly put their IT departments in charge of knowledge management, says analyst Dan Rasmus, who leads Giga Information Group's information and knowledge management practice. "We see this a lot," he says. "The CEO or some senior executive reads an article, gets turned on to KM and assigns it to IT, saying 'Buy me a system.'" The problem with that is twofold: Such an approach doesn't address any social or cultural issues; and even if it did, IS is not the best choice to lead cultural change within an organization.

"At the level we're talking about with knowledge management, you need a collection of people at the executive level driving the message, changing the way they behave and evaluating people," Rasmus points out.

Steve Cranford, who used to head the knowledge management services division at KPMG Consulting, agrees. Whoever you put in charge of your KM initiative will dictate the direction it takes. If an IT person does it, it'll have a huge IT focus. "It's easy to say, 'Let's just give it to the IT guy and he'll build something,'" says Cranford, who is now the CEO of KSolutions, a knowledge management consultancy in Annapolis, Md. "But that's why it's failing."

And maybe that's why KM works at the Ritz-Carlton Hotel Co., in Atlanta, where KM uses very little technology. At the Ritz, it's all about people sharing their experi-

1990s, early adopters ran into trouble. They were experiencing less-than-satisfactory results, like lack of usage and irrelevant search results, and grew disappointed with Lotus Notes and other tech-driven applications. Personnel simply weren't using what adopters implemented.

By 1997, those in the know realized that this was because knowledge management wasn't about technology; it was about peo-

ences, says CIO Pam Angelucci. In fact, her most successful KM program uses no technology at all. It's a "green book" of best practices collected from the top performers in every department in the company, from corporate management to housekeeping. The hard-copy volume is updated annually by a vice president of quality, and the expert content is chosen based on quality scoring procedures. "[Knowledge management at Ritz-Carlton] really has little to do with any kind of technology," says Angelucci. "I suppose we could look at putting it into a database and automating the pieces, but it's just not high on our priority list." The system appears to work: Ritz-Carlton is a two-time winner of the Malcolm Baldrige National Quality Award from the National Institute of Standards and Technology. "When it comes to technology, we'll never put it in just because it's available, new or there," she says.

New Habits

If KM is going to continue, either consciously or subconsciously, it's crucial to address the larger issue of KM. It won't be easy, says Davenport. "Organizational and behavioral change is the hardest part of implementing anything," he says. "Buying software is the easiest part."

So what can you do to get it right? The following tips will help keep KM vibrant in your company.

Isolate a business need. There's no point in trying to manage knowledge if you have no idea why you're doing it. So find out where the ability to capture and reuse knowledge will prove most profitable. You should make this evaluation based on how your organization conducts its current business and on your existing technology infrastructure. "You need to hammer down what your business drivers or goals are," says Jim McKinley, director of knowledge

solutions for Net Perceptions. "If you don't know your end result, there's little chance you're going to get there with whatever decision you end up making."

For example, if you're a consulting organization and have 40,000 consultants wandering around the globe doing similar tasks and similar projects—but in completely different regional or technical silos—you want to make better use of that information across boundaries, McKinley points out. "Do you provide information to clients? To managers of project teams? In what sense do you want to bring these people together in real-time, in an offline mode?" he asks.

Only after you've worked out these issues do you begin to go out and seek tools.

Measure business impact. The point of knowledge management is to make your business more valuable, and you need to find ways to ensure this happens, says Michuda. Have you reduced your product development cycle 30 percent because of

your KM process? Have you reduced the amount of time it takes to get government approval of your product? These are the real measurables that will show the value of your KM initiative.

Michuda cites pharmaceutical giant Johnson & Johnson as an example. J&J analyzed its FDA product application process in an effort to learn why the company wasn't getting new products to market faster than the competition. Typically, J&J would submit an application to the FDA, which would review it and bounce it back with questions. The submission team would have to go back, research the questions and resubmit the application. What if they could capture all the questions the committee raised on similar J&J products that had already won approval? The company started keeping a repository of previous applications. Now, prior to every submission, the application team digs out the files, looks at previous rejection questions and

Chief Knowledge Officers (a.k.a. Title Inflation 101)

Yes, knowledge management depends on a strong champion for cultural change in your organization. But do we really need another Mahogany Row denizen to do the job? Many companies think so and have hired what they call chief knowledge officers.

But Giga Information Group analyst Dan Rasmus says he's skeptical of companies that lead with a full-time CKO. According to him, KM works only when people share what they know with colleagues, not when middlemen CKOs try to exhaustively document human knowledge and store it online.

Nevertheless, the CKO position can be valuable when your organization is in the knowledge business, says Rasmus. "There are organizations that do have good CKOs," he says. "If I'm talking about a consulting company and all they have is people's knowledge, then the CKO is the head of engineering."

But, he adds, when the CKO is more concerned with forming councils and conducting studies, KM projects probably won't succeed.

—E. Berkman

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Knowledge Management

Pam Angelucci, CIO of Ritz-Carlton Hotel Co., says its best KM practice uses no technology at all.

goes back to the product development team to make sure they're answered. "This has drastically reduced the amount of time it takes to get through the FDA process," says Michuda. The company made \$30 million on one product alone just by releasing it a month earlier, he says. "That's real business. That's real stuff."

Reward knowledge sharing. In most companies, you benefit by hoarding what you know. After all, you become the resident expert on a subject and enjoy the status it brings. Trouble is, hoarding knowledge leads to duplication of work and turf wars. You need to teach new, collaborative behaviors, and that's where rewards come in. "Think about incentives for sharing," says Davenport. "And remember, if you don't have them, knowledge management technologies will never create them."

For example, last year PR agency Hill & Knowlton implemented a companywide intranet where its professionals could access staff bios, practice-group profiles, client information, industry news and even e-mail exchanges relevant to issues they were working on. The big challenge was getting people to share their knowledge on the intranet. Worldwide Director of Knowledge Management Systems Ted Graham created a "best-seller" list of the most frequently accessed contributions. Being on the list gave employees recognition, he says. Additionally, knowledge sharing is now part of Hill & Knowlton employee

performance reviews. "We've gotten tired of people just saying, 'I'm an expert' when they haven't earned it," says Graham.

On the knowledge-seeking side, Hill & Knowlton hides "beenz," a form of micro-payment created by New York City-based Beenz.com, throughout the site. Every time an employee opens a document or contributes information, there's a chance of collecting beenz, which can be redeemed for books, CDs and even Caribbean vacations. Graham's theory is that these incentives will get employees to explore the intranet beyond their own client accounts. "We want them to be able to see what else is being done around the network," says Graham.

It's all part of changing your culture. And if you don't change your culture, you'll never manage your knowledge—and KM will truly be a bust. ■

Senior Writer Eric Berkman is happy to share his knowledge about the 1984 Detroit Tigers. Send him an e-mail at eberkman@darwinmag.com.



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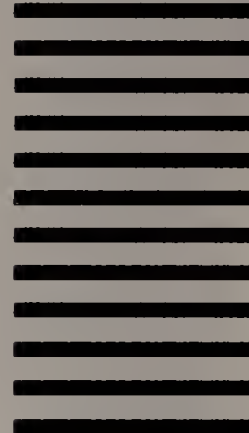
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In one industry after another, novel cartellike structures are springing up with the goal of squeezing wasted time, money and energy out of almost every imaginable business transaction. Put in the starkest possible terms, the online world now challenges businesses to decide with which gang (or gangs) of powerful thugs to join forces.

The Marketplace

PHOTOS BY JEFF SCIORE



PRIVATE

Sure, you can stick with the status quo and continue to manage your trading-partner relationships in the old, reliable ways. But the days of disordered and inefficient supply chains are rapidly coming to an end. New models for buying and selling are now available for your inspection and testing. No, they're not perfected yet. But in a matter of years—maybe three, maybe five—these public and private online marketplaces will likely have become the dominant means of supply-chain management. (Boston Consulting Group estimates that, by

2004, public exchanges alone will account for 30 percent to 50 percent—or \$1.5 trillion to \$2.5 trillion—of the total e-commerce transaction volume.)

The rules for developing these online exchanges are being written today. The first movers are getting their feet wet, and the lessons they learn will be the basis of improved iterations to come. You might think you can afford to wait for the exchanges to settle out and become well-defined tools for supply-chain excellence. You might be wrong. Even if your culture is that of a fast follower or slow adopter

rather than that of a first mover, now is the time to begin dabbling in these nascent forms. If you're not learning and exploring right now, the future will find you unprepared. While you're waiting patiently for the various models to be developed, your competitors may gain an insurmountable advantage by shaping these emerging marketplaces in their own image.

So, the key message we leave you with in this two-part special report on the marketplace revolution is simple: Get cracking!

—The Editors

evolution

open to the Public

Does the prospect of falling years behind your competitors in e-commerce scare you? It should. It's why industry powerhouses are coming together to build public marketplaces.

B y C h r i s t o p h e r K o c h

Patrick Steele wants to get big, mean and ugly. He could try shaving his head, taking some steroids, slashing his name to Steel and applying to the WWF. But that's not the kind of big, mean and ugly he's talking about.

Instead, he helped build the Alexandria, Va., WWRE (WorldWide Retail Exchange), a public Internet-based marketplace for buying supplies and creating information links with suppliers. By combining the buying power of his grocery chain—Albertson's—together with dozens of other retailers from the drug, grocery and general retailing industries that form the WWRE, Steele, executive vice president of information systems and technology for Albertson's, can get big, mean and ugly real fast. In fact, together, the WWRE's members account for \$722 billion a year in purchases.

Steele and other WWRE members want to use their newfound brutish clout to exact bulk-buying discounts from suppliers and get them to share information about shipments, inventory levels and manufacturing forecasts. In other words, Steele says he wants to use the WWRE website to look, sound and act like Wal-Mart Stores, the biggest, meanest, ugliest retailer in the world. Steele means that, of course, in a good way. If he weren't a direct competitor, he'd use the term that investors use to describe Wal-Mart: beautiful.



Becoming Wal-Mart

Beginning in the '80s, Wal-Mart used software to connect all of its stores, creating a single mega-unit of buying power—and then went a step further. With major suppliers like Procter & Gamble, it built direct software linkages between suppliers' factories and the cash registers at Wal-Mart stores. In effect, P&G can monitor the shelves at Wal-Mart stores through real-time satellite link-ups that send messages to the factory whenever a P&G item swoops past a scanner at the register.

With this kind of minute-to-minute information, P&G knows when to make, ship and display more products at the Wal-Mart stores. No need to keep products piled up in warehouses awaiting Wal-Mart's call. Invoicing and payments happen electronically too. The system saves P&G so much in time, reduced inventory and lower order-processing costs that it can afford to give Wal-Mart "low, everyday prices" without putting itself out of business.

As a result, Wal-Mart moves products through its stores more quickly and with less overhead. "If you stumble into a back room at Wal-Mart, you'll see that they treat all their goods like perishables," says Gale Daikoku, senior research analyst at Gartner, a Stamford, Conn.-based research company.

Steele desperately wants to get to that level too. Until the Internet came along, however, he never had the buying power to justify the expense of building a Wal-Mart system. Constructed in the days before the Internet, Wal-Mart's system consists mostly of expensive, customized electronic data interchange (EDI) links to exchange information between computers in its stores and those of suppliers. Suppliers had to agree to build their half of the complex system in their factories. Not

wanting to risk losing their biggest customer, most suppliers did their part.

But Albertson's is less than one-quarter the size of Wal-Mart and has never had that kind of clout. Until now. Steele is counting on

the WWRE's buying power and its collaborative planning, forecasting and replenishment, or CPFR, software (which is scheduled to go live this fall) to make him look and feel like Wal-Mart to his suppliers. Ganging up with other retailers on the Internet offers a way for Steele to catch up with the Wal-



"The buying process went from two weeks to four hours, just by putting it online."

—Novopoint's Bob Schult

Marts of the world, while sharing the costs and burdens of building the new electronic supply chain with a few of his closest competitors.

Clout and collaboration: It's the rallying cry for companies in every major industry that are building online B2B exchanges for doing business with their customers and suppliers. These public exchanges promise to make everyone—from the Big Three automakers to grocery chains like Albertson's—the Wal-Marts of their industry.

Forming a New Company

An initial torrent of venture capital money last year prompted every overly ambitious MBA with a business card to start building a B2B exchange on the Internet—regardless of whether they knew much about the industry they were building it for. This year, with dotcom stock valuations low and venture capitalists taking their phones off the hook, such independent exchanges—so-called because they put ownership into a third party rather than in the hands of the major industry players—are not faring so well. They are being taken out of the game by the industry heavyweights that the independents thought would become members of their exchanges.

Why? Most companies looked at independent exchanges and said collectively, "We can do that."

"The dotcoms have a bright idea, and the techies say, 'Maybe we can find an industry and apply it,'" says Dan Jankowski,

Public Market-place

A website where sellers, suppliers and manufacturers in a particular industry meet to collaborate and exchange goods and services.

defined

corporate communications lead for Covisint, the Southfield, Mich.-based auto industry exchange being built by Daimler-Chrysler, Ford Motor and GM. "They're guessing about our industry. We know our industry, so we're partnering with technology providers to make it happen."

Building Trust

Companies in every major industry are making devil pacts with their fiercest competitors and staking out the best 40 acres they can find online to begin building their industry's monster hub for e-business. Getting arch competitors to agree on anything will be a tall order. Convincing suppliers to believe that exchanges are meant to do anything but beat them down on prices is another challenge. Building software specific enough to serve member and

supplier needs while keeping the software simple enough for everyone to use will be an unprecedented feat. No one, not even Wal-Mart, has done that yet.

Still, the difficulty of exchange building hasn't kept industry heavyweights from locking themselves in smoke-filled rooms and scheming for B2B dominance. If there's anything they've agreed on so far, it's that the exchanges must remain independent from the big companies backing them. Nearly all the major public exchanges are separate companies or joint ventures, with the backing companies owning a percentage of the new entity. The arrangement gives the owners a chance to make back their investment one day by spinning the exchange out as an IPO.

But for now, it is a tool to develop trust—among the members themselves, but also among the suppliers and competitors they want to join the exchange.

For Covisint, the big auto industry exchange, time and urgency have helped erode the walls around each of the owners. "At the beginning, you couldn't have a meeting without a representative from each [Big Three automaker] being there," says Shankar Kiru, business development executive for Covisint. "But we quickly realized we weren't going to get anywhere operating that way."

Meetings without quorums are now allowed, but Covisint still needs to maintain strict neutrality on the big issues. The relationship of the members is not exactly cozy, but for the notoriously competitive auto industry, it's a big step. "This is the first time since WWII that the auto industry has agreed on how to do things together," jokes Kiru.

In terms of impact on the industry, the Internet provides a cause to rally around and streamline the automakers' Byzantine supply chains. "Ford, GM and Chrysler all compete—but what they have in common is a passion to break through on the supply chain and streamline it," says Kiru.

At least Ford, GM and Chrysler all do basically the same thing. About the only thing Albertson's and the other companies in the WWRE have in common is that they all sell stuff. That limits the WWRE's bulk buying power to commodity items such as paper and pens. So WWRE's Steele has already begun looking beyond auctions for his payback from the exchange. The first few auctions may bring lower prices, but the gains are going to bottom out quickly once everyone finds the cheapest paper and pens, says Steele. (See "How Low Can You Go?" Page 82.) "Auctions allow buyers and sellers who didn't know each other existed to get together," he says. "But it can't sustain 20 percent price reductions each year because eventually you'd get to zero."



**"This is the first
time since WWII
that the auto
industry has
agreed on
something."**

—Covisint's Shankar Kiru



"You need transaction capability, but the real wins are in the collaboration."

—Cargill's John Geisler

Getting Faster

Even for exchanges that have held successful auctions for commodity materials, the primary benefits have been speed, not cost reductions. "Though no dramatic bargains were had, the buying process went from two weeks to four hours, just by putting it online," says Bob Schult, CEO of Chicago-based Novopoint, a minority investor and customer of agricultural distributor Cargill in Minneapolis.

Among the exchange audience that counts most—customers and suppliers—handling simple transactions online is already passé, says John Geisler, corporate vice president of Cargill. "In early pilot tests, customers said, 'Transactions are fine, but can you help me see all shipments coming at me from five different suppliers at the same time?' That's where the true unfilled need is. You have to provide transaction capability as an entry point, but the real wins are in the collaboration."

Today, every major public exchange is throwing itself into the complex task of building an online electronic supply chain. The

software behind it has to be broad enough to cover the major steps of planning and execution, but deep enough to serve the individual needs of a eclectic mix of

buyers, sellers and suppliers. But the potential payback is there—by 2005, nearly 50 percent of revenues for public exchanges will come from charging members for the use of supply chain software, according to The Boston Consulting Group (BCG).

Because no two industries' supply chains are exactly alike, finding a technology partner to help build the software is the biggest strategic decision the exchanges make. But the deep e-commerce software functionality that all the major exchanges are touting does not yet exist, they're all scrambling for the attention of the vendors that they think might be able to do it.

So far, Ariba and Commerce One are dividing up most of the deals between themselves because they were the first to build e-commerce software for MRO procurement and auctions. Two of the Big Three automakers (Ford and GM) were so desperate to gain Commerce One's undivided attention that they bought the company. To keep Commerce One from being subsumed entirely, it was broken up into a holding company evenly split between Commerce One, Ford and GM. The holding company owns the software division, which builds for the auto giants as well as dozens of other exchanges. Other exchanges have also bitten chunks out of their selected vendors, and some, like Covisint, have given the vendor a share of the revenue pie from the exchange—Commerce One will get 2 percent of Covisint and share in the exchange's revenues.

Vendors that make big software packages for enterprise resource planning, such as SAP and Oracle, and supply chain vendors, such as i2 Technologies, have chosen sides too—SAP with Commerce One and i2 with Ariba. Together with the Big Five consultancies, these companies are feverishly trying to design, build and integrate electronic commerce software for dozens of different major exchanges all at the same time.

Remaining Flexible

It's a huge challenge, and not all exchanges will have the money, patience and clout to become their industry's primary electronic supply chain. It all depends on whether the major players in an industry decide to build their electronic supply chains outside their companies in a public exchange or take those millions and invest in building private links with their suppliers. The ambitious public exchanges, with their independence and neutrality, hold out the hope of attracting more buyers and suppliers together in one place, but the level of specificity of a public exchange's supply chain software will probably never reach the depth that a company could build

30 to 50 Percentage of e-commerce transactions made through public exchanges by 2004 SOURCE: THE BOSTON CONSULTING GROUP

The Next Wave

LINKAGES BETWEEN PUBLIC EXCHANGES WILL BE AS IMPORTANT AS THE EXCHANGES THEMSELVES

If multiple public exchanges can coexist in the airline industry, it may be a sign of things to come for other industries.

At the highest level, Aeroexchange is backed by many of the major airlines and provides services like jet fuel and catering. Exostar—with airplane maker The Boeing Co. and supplier Raytheon—focuses on planes and maintenance. MyAircraft.com is financed primarily by Honeywell, United Technologies and other spare parts makers.

The carving up of the supply chain may be good for the different exchanges because they can each concentrate on what they do best. But it also means that no single exchange will be able to serve all the different supply chain needs of the airlines. "I don't think any of these exchanges can survive on their own," says Michael Burkett, researcher for AMR Research in Boston. "They'll each have a group that uses them as their core exchange, but they'll link to other

exchanges for additional functionality."

Public exchanges hoping to be the one and only of their industries may need to think about the next stage of public exchange evolution: exchange-to-exchange connections. Exostar has already announced its intention to become a kind of trading hub that links to other exchanges in the industry, but the technology to support that kind of linking will not be ready for a few years, says Burkett.

—C. Koch

with a select few suppliers in a private exchange. "A public exchange makes sense for bringing new buyers and sellers together and for possibly aggregating commodity buying," says Michael Burkett, researcher for Boston-based AMR Research. But, he wonders, for companies that have invested money and time in long-term relationships with suppliers for unique, highly designed "direct" materials—say an auto dashboard—why should companies pay to make that relationship public? Even though Covisint is one of the most ambitious public exchanges, no car manufacturer has dropped plans to build its own private exchange for hooking up with its closest suppliers (see "Your Own Private Idaho," Page 70).

Beginning to Experiment

For some companies—most notably small suppliers—even the basic software promised by the more ambitious public exchanges is better than what they use now: a phone and a fax. In the food industry, where Schult estimates that 95 percent of supply chain transactions are still done manually, small suppliers can afford to consider renting supply chain software if it means their only infrastructure investment is a PC and a Web browser.

It's a possibility that Cargill's planners hadn't counted on when they first plotted the company's e-commerce strategy in 1999. "Originally we thought exchange members would need to be responsible for their own back office," says Geisler. "Now Novopoint has smaller companies asking if they can sign up for its architecture on an ASP [application service provider] basis." Offering software for rent to small companies in the food industry will serve two major purposes for Novopoint: It will expand membership and provide a much-needed revenue

stream for the exchange. "We're going from being an exchange to becoming an outsourcer of supply chain visibility and collaboration," says Geisler.

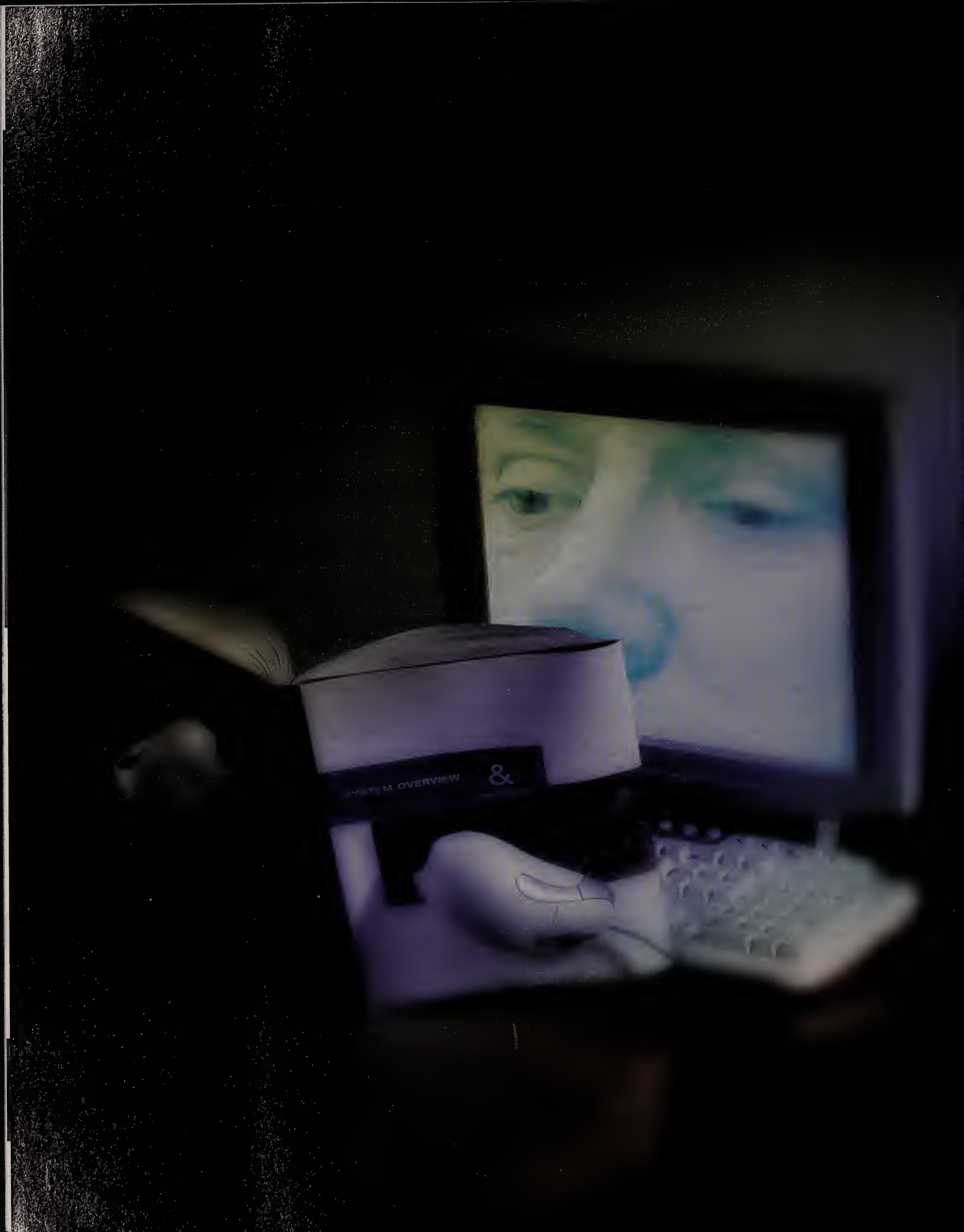
There's evidence that waiting for exchange technology to become more real before jumping in will backfire. Public exchanges are making decisions now about how they'll operate, what communications standards they'll use and what functionality they'll offer. Most exchange builders want to be part of those decisions, rather than on the outside looking in.

Those who have taken the leap into public exchanges are also discovering the impact they will have on their internal businesses. As Cargill is discovering, the public exchange has the potential to disrupt everything it does, from the way it goes to market to its internal e-commerce efforts. The first realization Cargill had was that Novopoint could become a potential outsourcer for Cargill's internal electronic commerce efforts. "As soon as Novopoint came along, our extranet ceased to have competitive advantage for us," says Geisler.

Novopoint has also put pressure on Cargill's business side to figure out how it will remold its businesses to link to customers online. "It keeps us on our toes; but it puts a lot of pressure on our businesses to adapt," says Geisler.

One thing is sure: B2B public exchanges are here to stay, despite the souring economy. Wal-Mart and P&G have demonstrated that there's just too much money to be made by streamlining the supply chain—especially when the Internet is making the savings that much easier to attain. By 2004, companies that participate in exchanges will reap benefits equal to 2 percent of sales, says BCG. By 2010, that estimate rises to 6 percent or \$1 trillion. The time to start getting big, mean and ugly is now. ■

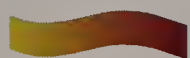
Executive Editor Christopher Koch can be reached at ckoch@darwinmag.com.



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Want to make your company more efficient without having to
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Your Private Idaho

By Sari Kalin

You'd have thought that Sonia Syngal was voted "Most Gregarious" in her high school class if you'd caught a glimpse of her at the company Christmas bash—drinking red wine, wearing a strapless burgundy gown and dancing to live music with 1,500 party-goers. But Syngal knows that sometimes it's best to get away from the crowd, whether after hours (she spent a quiet New Year's Eve at home with her husband) or at work. Syngal is leading Sun Microsystems' foray into private marketplaces—invitation-only, business-to-business e-commerce websites that can link a company to its customers.

By June, Sun will have bought a billion dollars of computer hardware components through what Syngal calls "dynamic bidding" events—private auctions where Sun handpicks the suppliers that will bid against each other for its business. So far, says Syngal, Sun's director of procurement strategy and supplier relations (and, at age 30, one of the youngest directors at the Palo Alto, Calif.-based company), these events have been a boon to Sun's bottom line. Suppliers that have participated in them have trimmed their prices by double-digit percentages, Syngal says. Sun's also been able to rethink how it manages its suppliers and even help some of its suppliers start their own private marketplaces. So why

should Sun cozy up to its rivals in one of the nascent public B2B marketplaces when it can save money and make its buying more efficient, all by itself?

Syngal is not the only supply-chain strategist who likes to keep things private. Jupiter Research says that spending on B2B marketplace infrastructure will increase to \$80.9 billion in 2005, much of that driven by companies paying for technology and services to build private hubs that tie together their suppliers and business partners. And they won't come cheap—analysts estimate it costs anywhere from a million to more than \$50 million to launch a private marketplace.

Some companies prefer to go the public marketplace route, sharing the costs and benefits with their competitors. That was the thinking at Earthgrains, a \$2.6 billion baked goods and refrigerated dough maker in St. Louis. Earthgrains was one of the founding members of Transora, a public marketplace that aims to bring together consumer product manufacturers—including Coca-Cola, Hershey, Nabisco and

Procter & Gamble—with their suppliers and customers. “We could do it on our own, but I can do it with 54 companies and pay one-fifty-fourth the cost and get 100 percent of the benefit,” says Martha Uhlhorn,

vice president of e-commerce and category management for Earthgrains’ bakery division.

Even so, some companies, like Sun, have spurred public marketplaces to start private ones. Others have hedged their bets, getting involved in a public marketplace while still launching a private one, suggesting that private marketplaces have some advantages that public marketplaces don't match.

To understand these advantages, it helps to put private marketplaces into the context of the overall B2B e-commerce landscape. Last year saw the advent of what a cynical observer might call the “press-release” marketplace: A group of competing Goliaths would announce that they were going to collaborate on building a B2B marketplace, one that would be an independent company (and pre-IPO), open to all in the industry, funded but not restrained by its old-economy parents. In theory, these consortium-run marketplaces would cut through corporate red tape and make the entire supply chain more efficient industrywide; they'd run auctions and set up catalog-style purchasing and later evolve into forums for manufacturers and suppliers to do collaborative planning, fore-

casting and replenishment. Trouble is, talking about technology-driven efficiencies is a lot easier than achieving them—especially when decision making requires fierce rivals to come to a consensus (see “Open to the Public,” Page 62).

Speed 'n' Greed

Therein lies one of the chief advantages of going the private marketplace route: not having to get buy-in from half a dozen or more competing companies to decide which technology provider to use or which features and functions to roll out first. For some companies, that means being able to move more quickly than a marketplace-by-committee ever could. That's one of the main reasons why Alliant Foodservice, a \$6.1 billion food service distributor based in Deerfield, Ill., decided to set up its own private marketplace. (See sidebar, “The Lone Ranger,” Page 73.)

But speed is not the only reason that companies take the private marketplace route. Some simply don't want to see their competitors benefit from any economies of scale that might come about from combined purchasing or from any supply chain efficiencies they might achieve online, says Kimberly Knickle, research director at AMR Research in Boston. “They think, If anybody is going to reap the benefits of buying in bulk or of a particular business relationship, it's

Private Marketplace

A website initiated by one company that invites its suppliers, customers or both to collaborate with it and exchange goods and services online.

defined

“We can get 100 percent of the benefit for one-fifty-fourth of the cost [of private exchanges].”

—Earthgrains’ Martha Uhlman

**"Suppliers participating in
dynamic bidding events
have trimmed prices by
double-digit percentages."**

—Sun Microsystems' Sonia Syngal

going to be me and nobody else," Knickle says.

Other companies are more concerned about security. Amtrak decided to use a private marketplace to solicit bids for financing multimillion-dollar rolling stock purchases because it didn't want to put sensitive corporate data—say, its financials or details on its future expansion plans—on a public marketplace. "Amtrak is not a publicly traded company," says Raj Srinath, director of corporate finance at National Passenger Railroad in Washington, D.C. "We did not want the whole world looking at that information."

Through the marketplace, set up and hosted by CapitalStream, Srinath can be choosy about which banks get to see Amtrak's RFPs, sending them only to those that are most likely to bid. "We can get a quicker response that way," he says, noting that it now takes only days to get answers to RFPs, not weeks.

Meanwhile, Sun considers information about its suppliers—in particular, which suppliers get used for which products and what prices Sun pays to them—to be highly proprietary, Syngal says. Furthermore, Sun is using a private marketplace to get bids from suppliers of direct materials. So Sun spends weeks, even months, preparing detailed RFPs that spell out quality, availability and other expectations it has for its suppliers. It doesn't want just any old circuit-board maker or sheet-metal fabricator bidding for its business, Syngal says: "We only invite suppliers we know."

Dazed and Confused

Questions about the future of public marketplaces can also lead companies to take refuge in building a private marketplace. When B.F. Goodrich's performance materials group started evaluating e-commerce options in 1999, it was unclear which public marketplaces would become leaders, says Alan Watson, director of e-commerce at the group. Picking a win-

The Lone Ranger

ALLIANT FOODSERVICE DECIDED TO RIDE THROUGH THE B2B WILDERNESS ON ITS OWN, BUILDING A PRIVATE MARKETPLACE IN A MATTER OF MONTHS.

When Alliant Foodservice first started hashing out its e-commerce strategy in May 1999, it considered forming or joining a public marketplace, says Earl Mason, former CEO of Alliant Exchange, Alliant's B2B division. But the food-service distribution space is fragmented, divvied up by a large number of players; going the public route would no doubt be slower than building a private marketplace, Mason says. And with the marketplace as a competitive edge, Alliant would stand a good chance of being able to grow its market share—all the more reason to go it alone.

With i2 Technologies, Alliant developed a beta site by November 1999 and launched the site in February 2000. AlliantLink.com lets Alliant's customers—chefs at hotels, restaurants and other food-service establishments—see in real-time what food and supplies are in stock at Alliant's 46 distribution centers. Customers can reserve inventory

and place orders.

By December, Mason says, the marketplace was on track to take in nearly a billion dollars in orders in its first year. But Jon

■ **10** Percentage of new customers with AlliantLink.com

■ **20** Percentage of increase in order size from existing customers ordering online

SOURCE: ALLIANT FOODSERVICE

Ekoniak, senior research analyst at U.S. Bancorp Piper Jaffrey in Menlo Park, Calif., notes that in markets where there is less consolidation, public marketplaces have the potential to achieve the greatest supply chain efficiencies. Even though the "management nightmare of bringing all the players together" was probably a turnoff to Alliant, he says, "there's a great opportunity to create a public marketplace in that industry."

—S. Kalin

ner was even more difficult because the performance materials group sells to manufacturers in many industries—textile, plumbing, pharmaceutical, paint and food, to name a few. Soon after the group began reviewing e-commerce options, B.F. Goodrich announced plans to sell off the business (a group of investors led by AEA Investors and DLJ Merchant Banking Partners bought it earlier this year). "Between the combination of the sale and that there were all sorts of [public] marketplaces touting that they'd be the industry hub of you-name-it, we decided we were going to sit back and let that sort itself out," Watson says. (Indeed, the performance materials group was slated to be a multimillion-dollar backer of Envera, a consortium marketplace for the petroleum and

chemical industries, but it pulled out once the sale to AEA was announced, Watson says.)

But waiting for the dust to settle on the public side didn't mean waiting on the B2B sidelines. Using software from Spaceworks, Watson's group developed a pilot site (due for a full rollout in the first quarter of this year) that links to the company's existing enterprise resource planning system. Customers can place orders online, check their order status, download technical data sheets and find e-mail contacts.

Paying the Price

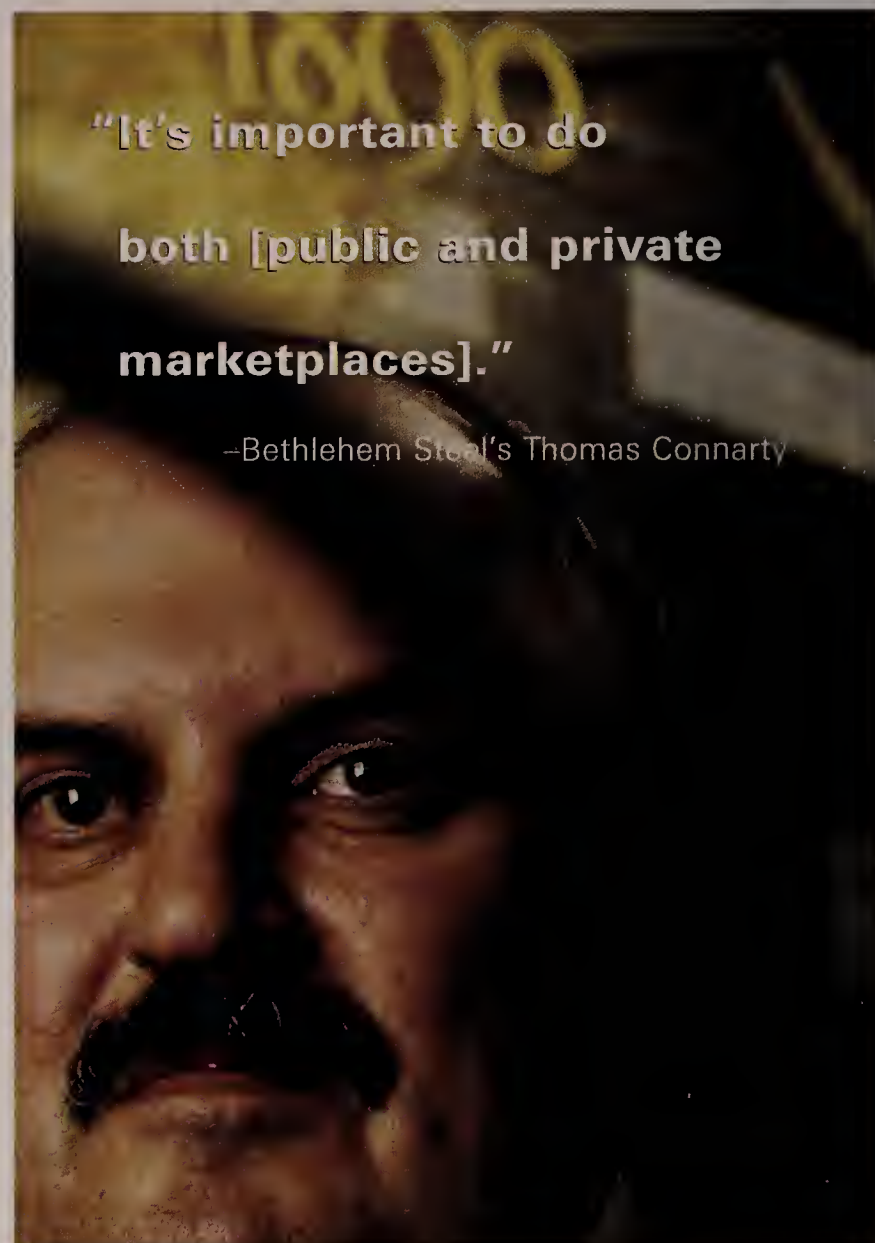
So far, Watson's group has spent in the range of \$3 million to \$5 million setting up the private marketplace; he's doing a cost-benefit analysis and talking to customers to figure out what functionality makes sense to roll out next. Alliant, meanwhile, has dished out "a couple hundred million dollars" to develop its private marketplace, says Earl Mason, former CEO of Alliant Exchange, the company's B2B group; the money was spent not just on the website but also on adding distribution centers and developing real-time reservation capabilities in its warehouses. Alliant expects its investments to pay for themselves by the end of this year or the beginning of next year, Mason says, when it hopes to get half of its revenues via its private marketplace. But that hefty investment underscores one of the biggest disadvantages of going the private marketplace route: You'll need to shoulder all of the technology and startup costs yourself. "They can be very cash intensive," warns Jim Monastero, managing director of the digital marketplace solutions practice at KPMG Consulting in Radnor, Pa. "You are, in effect, launching a software business."

Another drawback of the private-marketplace approach is that by definition, such marketplaces typically limit the num-

54 percent of sellers believe that the venue for transactions will be their own direct websites, yet only **13** percent see the single seller sites as the primary venue.

SOURCE: THE BOSTON CONSULTING GROUP

ber of potential suppliers or customers involved to those that have existing relationships with the company. "The benefit of the Internet is that you can share information with anyone on a real-time basis," says Jon Ekoniak, a senior research analyst at



U.S. Bancorp Piper Jaffrey in Menlo Park, Calif.

That's why some companies believe it makes sense to play in both public and private marketplaces—public, to find new customers or suppliers, and private, to form tighter ties with those that they already have. That's been the strategy at Bethlehem Steel. In 1999, the company took roughly a 10 percent stake in MetalSite, an independent public marketplace spearheaded by Weirton Steel; Bethlehem Steel uses MetalSite to unload excess inventory. It also launched a private "customer corner" area on the Bethlehem Steel website, where contract customers can see where their orders stand in production and look at mill test reports, shipping notices and shipping status. And last year, Bethlehem took an equity stake in OneBuild.com, a public marketplace aimed at the construction industry. "It's important to do both," says Thomas Conarty, Bethlehem Steel's senior vice president and chief procurement and information officer.

Even Sun's Syngal, a big booster of the private marketplace approach, acknowledges that public marketplaces may be a "long-term viable solution." But she believes they won't be the answer in her industry for a few years (the organizers of two consortium-led public marketplaces for the high-tech industry, E2open and Converge, would probably beg to differ). Until then, she'll keep Sun's online dance with its suppliers an invitation-only affair. ■

Senior Editor Sari Kalin can be reached at skalin@darwinmag.com.

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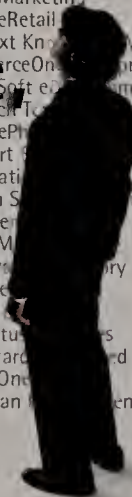
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Woodburn Solutions
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SYBASE
Information Anywhere



In 1969, we worked on a
SECRET GOVERNMENT PROJECT
that became the Internet.

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Back in the '60s a small band of computer whizzes was hired by the Department of Defense to work on the ARPAnet. Or what is commonly known as the forerunner to the Internet. These visionaries came from the legendary research and development company, BBN.



Black Rocket™ is Genuity's eBusiness Network Platform.

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A BRIEF HISTORY



In 1969, BBN was hired by the U.S. government to develop the ARPAnet, the forerunner of the Internet.



INTERNETWORKING

In 1997, BBN was acquired by GTE, the company that created our high-speed, 17,500-mile, Tier 1, fiber-optic network.

GENUITY

In 2000, GTE Internetworking became an independent company, renaming itself Genuity. Today, Genuity offers a vast array of managed Internet services, including Black Rocket.™

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face time

Vanguard's CEO and CIO depend on an unusually close relationship to steer technology decisions. But when you spend more than 40 percent of revenue on IT, you better know what's going on.

BY STEVE ULFELDER

**John J. Brennan,
chairman and CEO**

JOHN J. BRENNAN, CHAIRMAN AND CEO OF The Vanguard Group, was an *IT evangelist* long before that term became a hip job title. He's put his money where his mouth is too, investing an incredible 42 percent of revenues on technology this year alone. But it's been worth it.

In 1985, Vanguard was the ninth-largest mutual fund company in the United States, with \$16.4 billion under management. Brennan took the corner office in 1989, at age 34, and Vanguard hasn't looked back. By the middle of 2000, the company had \$555 billion under management and was the second biggest kid on the block, trailing only FMR Corp., better known as Fidelity Investments. While the mutual funds business as a whole has exploded these past 15 years, Valley Forge, Pa.-based Vanguard's growth has outstripped that of nearly all its competitors, including Fidelity.

Jack Brennan has an unusually tight relationship with Robert DiStefano, Vanguard's managing director of the IT division. (DiStefano "has people scattered all over," Brennan says, "but he sits here, right near me.") That's not really surprising considering that eye-popping technology budget, but the pair go further than the usual "align business and IT" sloganeering. DiStefano cites a recent *Sloan Management Review* piece ("How To Be a CEO for the Information Age," by Michael Earl and David Feeny,) that explains the seven types of CEOs and their attitudes toward technology. The article found that only one type—the believer—is suited to run an information age business.

Brennan and DiStefano recently spoke with *Darwin* Contributing Writer Steve Ulfelder from their offices in Valley Forge.

DARWIN: You've both touted the importance of the CEO and CIO relationship, and now this *Sloan* report seems to support your views. Is this still so unusual?

DiStefano: I know a lot of CIOs who have been fired. And many of them point to this report for vindication saying, "[CEOs] gave IT lip service," "They didn't really believe in strategic importance," "They never got involved." This report does a great job of describing what attitude a CEO must have to really make this successful and talks about the five things that the CEO does in actual behavior that makes him a believer. Basically, the CEO has to put the application of technology in the right context for his company, set priorities, which we think is really critical, send continuous positive signals to the organization that technology is critical, spend quality time on IT and work closely with the CIO.

What makes me lucky, I guess, is that Jack really is a believer.

OK, now Bob has earned his year-end bonus, but this stuff is easier said than done. What is it that's made you this supportive of the IT function, Jack?

Brennan: Some of it is probably generational. I'm only 46 years old, and I think that's probably an advantage [over older CEOs]. But we also noticed back in 1995 that there would be humongous opportunities to capitalize on the technology revolution. Maybe between the two of us, we had a little view that the whole online thing would happen.

Robert DiStefano,
managing director
of IT



For us,
there are
no IT issues—
there are only
business
strategy
issues.”

—JOHN J. BRENNAN, CEO, THE VANGUARD GROUP

So how are you going to make that online thing happen? Well, you've got to think it's technology that will drive it, which is no great deep insight. I think a lot of it is pretty obvious. But then you've got to get a team in place to make it happen, because most of all believing in IT is a sales job.

An internal sales job on your part?

Brennan: Absolutely. I go to all our technical training graduations for employees and always discuss the concept of technology as a key way we compete.

And other members of our senior team here are believers too. We commit time to it. We're interested in it. We are challenging about it. We've tried to ensure that people who get the senior roles are good buyers of technology and therefore not snowable, if you will, by a fast-talking guy who wants to buy a toy.

Then everybody has to deliver. In a high-growth environment and increasingly competitive business, the only way you can continuously improve is by applying your resources as effectively and efficiently as possible. For us, doing the technology side of the business well means that technology makes our people and our financial resources better utilized. If I get people to understand this, I'm doing my sales job.

And one way you can send this signal is by incorporating technology into your work life.

Brennan: Precisely. It's the little things that count. I haven't sent a piece of paper around Vanguard in years, since the day we went online. I'll probably have carpal tunnel syndrome, but I don't send memos.

An early convert to e-mail.

Brennan: Had to do it. You have to send those signals that this is visible, serious stuff.

You've been head of Vanguard's IT steering committee for a long time.

Brennan: Yes. You come back to the premise that number one, this is a huge part of what we do, so I'm going to be deeply involved in it; and number two, the human element of success in this area is as important as anything.

Bob and I spend a lot of time together because for us, there are no IT issues—there are only business strategy issues, and IT is a core part of how we get at them. There

aren't many days that go by that we're not shooting the breeze about something or other. Then we meet every two weeks with the steering group on IT-related issues. So it's a pretty intensive relationship, but it only works if you have a CIO who understands the business and is credible.

The two of you do a presentation in which you talk about IT success as the three Cs: context, competence and commitment. What's that all about?

DiStefano: Just being a good IT department doesn't mean that IT will be successful in the company. Again, the big point is that IT must serve the business. Frankly, technology for its own sake doesn't matter to our clients. There are two other dimensions that are important: the context of the problem set you're trying to solve and the clarity of what it is that we want to do with technology. For us, Jack really sets the context. My peers here [other Vanguard managing directors] in charge of the business areas really have to provide clarity as to what it is that we're trying to accomplish, and IT has to get it done.

Clarity? You sneaked another C in there?

Brennan: The clarity is very important. Otherwise you risk spending money for entertainment value, rather than productive use to meet your clients' needs. At least from my perch, one of the places people go wrong is not getting the clarity part right. The technology part of this is a lot easier than figuring out what to do with it. So clarity of purpose—in the context that is set for the corporation—is really where we put most of our effort as a management team.

Is that the area where some organizations don't do as well? They've got all the technology and they don't have clarity on what to do with it?

Brennan: I'd say that's certainly true. We look at business problems, and we have various arrows in our quiver that deal with those business problems or capitalize on opportunities. One of our arrows is the people in our company; financial resources is another. But the third arrow for us is technology. When we confront a business challenge, we find a technological solution to make us most effective. You see companies that just get it in reverse. They throw big money at technologies and end up with an exquisite solution to a problem that didn't exist.

DiStefano: Those fired CIOs I know always say, "Those idiots I worked for just don't get it. They don't know what they want. I gave them a great system and we used the latest technology, but they didn't like it. They don't know how to specify requirements. They don't know how to do this." Some of that is true, but the implication is that it's not the CIO's problem to make that happen—and it really is.

Why didn't those CIOs know it was their problem?

DiStefano: Mostly, they came from the technology side from day one and didn't get the exposure or the knowledge [that the demands on them] were changing. Or some didn't get the support from the business side that we [in IT] get here at Vanguard. They got the message, "You do the IT, we'll do the business [decisions]."

Bob, do you have a business background? Or does your business knowledge come via on-the-job training?

DiStefano: I started as a programmer, but my degree is in management and psychology. Actually, we [recently] looked at my senior staff, and there is only one person with a computer science degree. You really have to know what goes on from a technology perspective, what things will work together and what things won't. But that alone isn't enough. You have to also be great at relationship-building, communicating, conceptual and analytical thinking. These are things that help you relate to a business area.

Jack and I were talking about that, and he said, "We ought to try to hire poets in IT." So now we hire a lot of college grads every year with computer science degrees, but we look for two or three a year that are more liberal arts types. We just hired a dance major. We put them into an IT

role that doesn't require technology but lets them see what we do. They love it. They really want to get into it, and the three we've trained so far have started to take technology courses on their own. We think they can be real future stars for us.

That's an exceptional idea.

Brennan: You can teach the programming, but it's harder to teach breadth of vision and creativity, and the ability to assimilate new ideas. If it's easier for a poet to assimilate the creative aspects of what it is we're trying to accomplish, and we can teach them to be effective and efficient as a coder, why not? We've found that a mix of technicians and nontechnicians is very important.

DiStefano: In 1995, I was looking for someone to run [Vanguard's] systems development group. I said to Jack, "There's this guy [elsewhere in the company], who's not an IT guy but he really knows how to make technology work successfully, and he'd be great." Jack kind of said, "Yeah, OK." I didn't think he took me seriously. A couple of weeks later, he said, "It's done. You've got him."

I think the rationale was that if this guy is going to be a future leader in the company, he'll be better for having spent time in IT. And he was just the best thing that ever happened to us. He didn't know technology, so he didn't deal with that. He dealt with issues like how you make big change initiatives successful. He left us with a lot of great techniques that we still use.

Let me confirm this, because it's a pretty astonishing number. Forty-two percent of your total corporate revenue goes to IT?

Brennan: Yes. IT is integral to everything we do. A core part of our technology strategy is leveraging the people and letting the machines do the doing. We'll swap \$2 of payroll for \$1 of IT any day of the week. Then the people on the payroll are doing value-added work instead of low-end work.

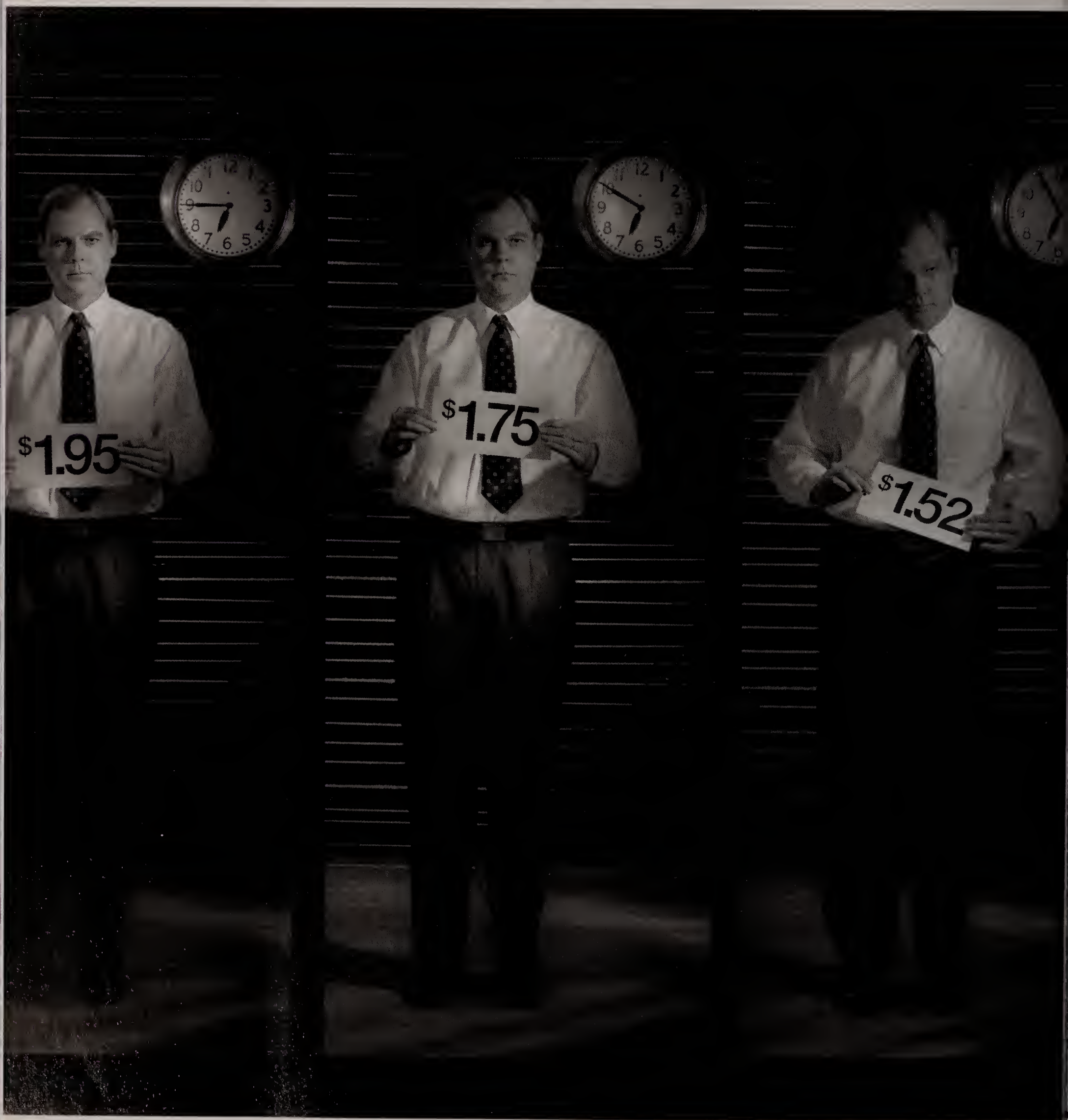
Even in this day and age, that's an amazing percentage.

DiStefano: Uh huh.

Brennan: And if Bob had his way, it would be bigger. 

Are you a CEO with an unusually close relationship with your CIO? Let us know at letters@darwinmag.com. You can contact Contributing Writer Steve Ulfelder at sulfelder@charter.net.

Dynamic Pricing



HOW LOW CAN YOU GO?

B Y S A R I K A L I N

IF YOU'RE SMART, YOU'LL DECIDE
YOUR ONLINE PRICING STRATEGIES
BEFORE THE BIDDING WARS BEGIN

W

Welcome to the new *Price Is Right*, the high-stakes game show where you get to guess the right price to win a multimillion-dollar manufacturing contract. Let's meet our first contestant. Jim is a sales manager at a sheet metal maker in New Jersey. This is your first time bidding for business in an online auction, isn't it, Jim? Are you a little nervous?

After all, we're playing with your company's bottom line here today. Or maybe you're worried about your own bottom being on the line. The truth is, audience, Jim has every right to be afraid—and if your company is about to play games with its prices on the Web, you're probably feeling a bit uneasy now too.

The ability to change prices on the fly—also called dynamic pricing—carries a certain amount of risk. Just look at our friend Jim. Like many suppliers, he's about to slug it out in a descending price,

or reverse, auction—that is, an auction in which the prices drop as the bidding progresses. **If Jim bids too cautiously on the job, he may lose it to someone else. But if he bids too aggressively, he may be overcome with the winner's curse: "I won the order, now how am I going to make any money on it?"**

Good old-fashioned fixed pricing isn't dead yet—and some pundits say it never will be. But dynamic pricing is going to become more prevalent in business-to-business e-commerce. IDC (a sister company to *Darwin's* publisher, CXO Media) forecasts that by 2004, 20 percent of B2B e-commerce transactions in the United States will involve some form of dynamic pricing—auctions (of all sorts), requests for quotes, online price negotiation and so on.

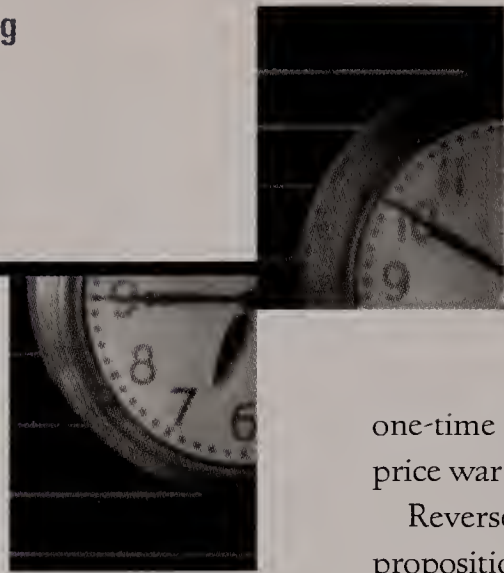




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That's double the percentage predicted for this year. Forrester Research has an even more bullish estimate—that by 2004, half of all trade in B2B marketplaces “will take place through dynamic pricing venues, forcing suppliers to set prices in real-time.” So smart sellers need to think about how to handle tricky price negotiations online—before they get embroiled in the bidding wars.

RISKY BUSINESS: THE PERILS OF DYNAMIC PRICING

Suppliers that want to dabble in dynamic pricing online typically test the waters by selling surplus or discontinued merchandise in an English-style auction—where buyers bid up the prices as the auction progresses (à la eBay). The thinking is that by putting surplus stock up for bid, a company can garner higher prices than it might otherwise receive, as long as there are enough bidders. (The fancy term for having enough buyers and sellers to make a market is liquidity, a quality that some fledgling B2B exchanges are, as yet, sorely lacking.)

In the short term, auctioning off surplus goods can help a company cover its fixed costs. But it may damage the company's profitability in the long term, says George Cressman, senior pricer at Waltham, Mass.-based Strategic Pricing Group. Customers may learn “to expect that prices will be lower if they postpone purchases,” Cressman warns. As a result, they may wait to buy, banking on suppliers to get desperate to unload inventory or meet their quarterly numbers (shopping mall parking lots overflow on Dec. 26 for much the same reason). Competitors, meanwhile, may view the auctions as a drive for market share—not a

one-time inventory clearance—leading to a price war and permanently lowered prices.

Reverse auctions can be an even scarier proposition for sellers. They, too, can make buyers more price sensitive, Cressman says. And they can inspire sellers to get caught in an underbidding frenzy, going lower and lower to grab the piece of business that's on the table. He urges sellers to resist the temptation to do so. The buyer in a reverse auction is not necessarily obligated to pick the lowest bidder, and price may be used only to winnow down the number of suppliers with whom a buyer will negotiate (see “Blood, Sweat and Fears,” this page).

PRICING IT RIGHT: A LESSON FROM THE AIRLINES

Despite the potential drawbacks of reverse auctions, some sellers may have no choice but to participate in them if their customers want them to do so. Clearly, the most important thing to know before you join the fray is how low you can go—what is your walk-away price? Suppliers need to have a good handle on their costs. Yet they also need to understand how their prices drive demand and influence competitors.

A sophisticated pricing strategy pioneered by the airlines and powered by high-end software may be able to help them do just that. The strategy, called revenue management, is a scientific way of calculating prices to maximize profits, based on models of customer demand, price sensitivity, margins and other sales factors. Why has revenue management (also known as revenue optimization or

Blood, Sweat and Fears

IF YOU'RE GOING TO GIVE REVERSE AUCTIONS A TRY, GET READY FOR SOME THRILLS AND CHILLS

Bob Prevette can think of two choice phrases to describe his first experience bidding for business in an online reverse auction: “wildly emotional” and “gut-wrenching.”

At stake was a million-plus dollar per year contract from a Fortune 500 consumer packaged goods manufacturer to do graphic prepress work for corrugated cardboard boxes. Prevette's employer, Sterling Marketing Products, a privately held, 55-year-old Canadian company, needed to be one of the three lowest bidders in order to get to make a live sales presentation to the buyer.

FreeMarkets ran the auction. The Pittsburgh-based B2B marketplace has conducted more than \$10 billion in online reverse auctions for buyers across a wide spectrum of industries. FreeMarkets gives suppliers spreadsheets to help them identify their internal costs and calculate their bids. It also has an ongoing practice auction to give sellers a feel for what it's like to place a bid. That practice auction helps, Prevette says, but it doesn't begin to capture the adrenaline rush of a live auction.

In Prevette's case, 10 managers and the company's president gathered in Sterling's boardroom. Pre-

vette projected the FreeMarkets screen on the wall and got ready to type in the company's bids. Sweat soaked his shirt—this was way more stressful than any sales presentation he'd ever done. "We knew our break-even volume," explains Prevette, sales manager at Sterling. "But the inside fear was that we were going to just throw all our numbers to the wind and decide to take the market."

The bidding began high and dropped. The company's controller just couldn't bear to watch—he walked out of the room. Sterling's break-even point came, and everyone agreed that Prevette shouldn't go any lower. So they watched as one lower bid came, then another, then another—11 in all—and assumed Sterling had lost the job. "We were licking our wounds," Prevette said.

It turned out that those 11 bids came from two bidders slugging it out to offer the lowest possible price. Sterling was the third lowest bidder, so Prevette got to make a sales presentation in person. He showed off Sterling's online project management tool that lets its customers review graphics at any stage in the production process and make changes on the fly; he also talked up the company's ability to produce and deliver printing plates anywhere in North America within three days. The pitch worked—Sterling won.

—S. Kalin

yield management) taken hold in the airline industry? Because airlines have a limited and perishable inventory—there's a fixed number of seats on a 747, and once the plane takes off, any unsold seats are worthless. "The only lever the airlines have to pull to adjust supply and demand is the price lever," says Robert Phillips, CTO at Manugistics, formerly known as Talus Solutions, a revenue management software vendor (which was acquired by Manugistics, a supply chain management and e-business software vendor, last December).

Software from vendors such as Manugistics and Pros Revenue Management helps the airlines figure out the right price to charge for every ticket—and whether and where it makes sense to sell a ticket—so that they can balance supply and demand. The software crunches historical data on demand and price sensitivity. It looks at opportunity costs (if a Boston to Chicago flight continues on to San Francisco, and a ticket is sold only for the Boston to Chicago leg, that means the airline would lose the opportunity to sell a Boston to San Francisco fare) and channel issues (for instance, what are the costs of selling a ticket through a travel agent versus selling it direct to a consumer over the website). It predicts future demand and then generates price and availability recommendations for every seat—say, how many seats should be sold at full fare with no restrictions, how many should be sold as nonrefundable tickets with a 14-day advance purchase—and it revises those recommendations based on actual sales.

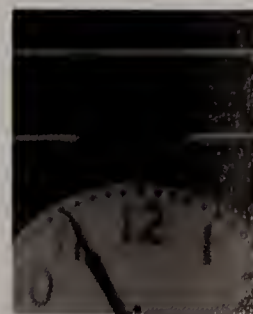
The airlines now let software make automatic pricing decisions for well over 90 percent of the tickets they sell, says Andrew Boyd, vice president of research and design

and senior research scientist at Pros. Revenue management has spread from the airlines to other industries that share similar economic characteristics (the hotel, rental car and energy production industries, to name a few). Implementations can run into several million dollars. But depending on the industry and the company, deploying revenue management software can result in 2 percent to 10 percent increases in revenues, Boyd says.

BROADENING REVENUE MANAGEMENT: THEORY AND PRACTICE

David Simchi-Levi, a professor of engineering systems at MIT, believes that manufacturers can use revenue management techniques to help set prices dynamically. Based on his research, manufacturers that adopt dynamic pricing can increase the efficiency of their supply chains by better matching supply to demand and can in turn increase profits anywhere from 5 percent to 7 percent (assuming that their supply chains are already running at peak efficiency).

How might manufacturers achieve those gains? They could adjust prices so that the plant always runs at full capacity, charging lower prices at times of low demand, higher prices at times of high demand, he says. Or they could extract higher prices from customers who need a product more quickly, much the same way an airline charges customers more money for tickets purchased less than seven days before a





flight. Companies that adopt dynamic pricing will tend to have lower prices, on average, than companies that don't—a crucial advantage on the Internet, where it is easy to compare prices among competing suppliers.

Simchi-Levi's research is based on analyzing demand and price sensitivity data from a large manufacturer—he didn't actually study a company that has adopted dynamic pricing online. Yet there are signs that revenue management techniques will be used to help sellers participating in B2B marketplaces.

Forrester research analyst Navi Radjou notes that **revenue optimization software vendors are beginning to pitch their products to manufacturers that want to participate in online B2B marketplaces and that need help setting prices in real-time.** For example, Maxager Tech-

nology sells software that aims to help manufacturers use their plant capacity more efficiently by measuring profit per minute—not per unit. "What manufacturers really need to know is, 'Which product is generating the most cash and profit per minute of my precious manufacturing time through my factory,'" says Maxager Technology CEO Michael Rothschild. One of Maxager's software modules helps companies do "precision bidding"—that is, calculate the walk-away price to bid on a specific volume of a specific part number to a specific customer, based on raw materials prices, size of the order, profitability of the product per minute and the company's target return on assets, among other factors. Some of the company's customers plan to use the software to help them prepare bids in B2B marketplaces.

Forrester's Radjou believes that manufacturers in complex industries—say, automotive or high-tech—should probably wait to deploy

the message is the solution

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HELL HATH NO FURY LIKE A CUSTOMER CHEATED — SOMETHING WEB RETAILERS SHOULD REMEMBER IF THEY ENGAGE IN PERSONALIZED PRICING

According to Forrester Research, personalized pricing means serving customized prices and product offers based on who the customer is, what they've bought in the past and how sensitive they are to price. It's an intriguing idea. But a snafu at Amazon.com stands as a cautionary tale for anyone thinking about abandoning fixed pricing.

Last fall, word leaked that Amazon was charging different customers different prices for the same DVDs. Customers were outraged, fearing Amazon looked at their personal data to pick its prices. Amazon denied the allegations, saying that it was randomly testing prices, a common business practice.

Forrester says Amazon's price testing backfired because the company made two mistakes: Rather than vary product prices, it should have varied the total product offer (it could have tested how much more money customers would pay for a DVD if they could get it two weeks earlier); it also should have taken a more sophisticated approach to customer segmentation.

Several software vendors are trying to make this sort of automated price testing and optimization capability available to online retailers. Optivo, for example, offers a service that lets retailers test different offers with different segments of their customer base, see how customers respond and then make changes.

Even so, John Sviokla, vice chairman at Diamond-Cluster International, believes that online retailers will be slow to monkey around with pricing out of fear of alienating consumers. "You may walk into an airplane and know that there are 20 different prices for the seats, but there's no place you actually see that," Sviokla says. "If you had an LCD at the end of every seat and you could see that I paid \$442 and you paid \$805, I think you'd have a real consumer revolt." —S. Kalin

revenue management tools until they have developed tight, real-time information-sharing with their suppliers. (Software vendors are stepping up to help make those linkages, as evidenced by Manugistics' acquisition of Talus and its planned integration of Talus' software with its own supply chain management systems.) But in commodity industries—say, paper, plastics or chemicals—raw materials are more abundant; manufacturers don't need real-time links to their suppliers in order to make on-the-spot decisions about pricing or production levels. "So they can start rolling out revenue optimization tools without delay," Radjou says, although customization would take some time.

DYNAMIC PRICING: NOT A PANACEA

As promising as the revenue management approach sounds, B2B sellers may not want to entirely emulate the airlines, cautions Eric Mitchell, president of the Professional Pricing Society in Atlanta. Many consumers resent airline pricing because fares change so frequently and they don't know what a fair price is for a given trip (for more on consumer reaction to dynamic pricing, see "Fair's Fare," this page). B2B customers could react similarly if faced with shifting prices for a drum of industrial lubricant or a gross of hex-head bolts, Mitchell says. "You can just drown in prices for a product." Sellers also need to think about whether they've got the right people on staff to manage dynamic pricing, Mitchell says; once more of an administrative function, pricing will increasingly need to be overseen by employees with a strong quantitative background.

Cressman, meanwhile, has a more fundamental concern: Managers will rush to roll out dynamic pricing strategies and software before they've thought through the strategic implications of such a policy. "Implemented poorly, dynamic pricing schemes are likely to drive more customer price sensitivity and the demand for more price negotiation to reach lower prices," Cressman says. "And poorly implemented dynamic schemes create the potential for competitive price wars and lowered profitability for all."

Pricing strategies should be founded on an understanding of the value you provide your customers, Cressman says—that is, understanding your economic impact on their businesses. Does your product or service help reduce their overall costs? Does it increase their revenues? Sellers also need to be constantly marketing themselves to target customers, communicating their value, Cressman says: "Here's why you do business with me," "Here's my impact," "Here's what you'll lose if you stop doing business with me." That's the only way sellers can get paid what they are worth—offline or online. ■

Senior Editor Sari Kalin's closest brush with dynamic pricing was an eBay auction of an art nouveau linen runner. She can be reached at skalin@darwinmag.com.



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igloo

Peter Irniq was living in an igloo when he first experienced the wonder of technology. It was 1952, Irniq was 5 years old, and his family was living on the frozen tundra of Canada's Northwest Territories. They put up with the bitter cold and isolation so Irniq's father could be close to the caribou—the family's main source of food and clothing. Their only neighbor, another Inuit family, lived 50 feet away in another igloo. One day, Irniq's mother emptied a tin can from the Hudson Bay Trading Co. and with a long string connected it to another can in their neighbor's igloo to create a telephone of sorts. Her initial enthu-

siasm about the project quickly subsided after hearing only faint murmurs in response to her questions. But the memory stayed with her son long after he went on to become an Inuit elder. Now as the commissioner (the head of state) of Nunavut, a new Canadian territory that is run by and for the Inuit, Irniq thinks often of his mother's attempt to overcome the elements—and the idea that some sort of technology might be the way to do it.

Nunavut (pronounced NOO-na-voot) was formed on April 1, 1999, as part of a reparation settlement between the Canadian government and the Inuit who make up 85 percent of the new territory's population of 27,000. In the settlement, the Inuit explicitly won the right to govern the new territory—1.25 million square miles that stretch from the Manitoba border to an archipelago near the

BY DAINTRY DUFFY

Grise Fiord (population 145), Nunavut's northernmost community, has **24 HOURS OF DAYLIGHT** every day in June, and **ROUND-THE-CLOCK DARKNESS** in December.

North Pole—themselves. The territory's name means "our land" in the indigenous Inuktitut language, reflecting the Inuit's deep historical ties to the region and reminding the rest of Canada that the Inuit are serious about self-government.

Of course, new governments don't just spring up overnight with the wave of a pen. Like any startup venture in the business world, they need infrastructure—buildings, protocols, people and in Nunavut's case, a lot of technology to establish lines of communication across a swath of frozen land more than four times the size of Texas. And creating that technological infrastructure was fraught with some exceptional challenges, as the Nunavut Interim Commission, which was established to oversee the transfer of power to the Inuit, quickly discovered. In some ways, the weather-related challenges Irniq's mother was trying to overcome were the least of the commission's

worries. The IT transition team, after all, was charged with creating systems to enable self-government among a population largely unexposed to technology. And it had to do that without imposing its own cultural norms on the new Inuit government.

RESPECTING THE CULTURE

For 30 years the Inuit negotiated with the Canadian government for a territory in which they could form their own government built on the recognition of their unique culture. The members of the Nunavut Interim Commission realized early on that a great part of the challenge of making Nunavut a reality would be bringing the

technology and tools of the south to the north country without importing the southern attitude.

The Inuit culture has not been treated kindly by the modern world, and years of culture clash have taken their toll. Nunavut has the highest violent crime rate in Canada (5,241 incidents per 100,000 people compared to 955 per 100,000 for all of Canada in 1999). The region is also ravaged by alcoholism, depression and suicide (the territory's suicide rate is six times Canada's national average). Experts attribute much of this to the cultural dislocation the Inuit face as they increasingly move from their tiny villages into the larger communities.

I would like our young people to have the knowledge of our ancestors.

But I also want them to be able to communicate in the world of modern technology.

— PETER IRNIQ, COMMISSIONER OF NUNAVUT



Part of the government's task in Nunavut, therefore, is to combat these problems by bringing the Inuit into government jobs so that the people will truly be in control of their own destiny. In fact, by 2010, the goal is that 85 percent of government jobs will be held by Inuit.

But Dave Smith, chief informatics officer for the Interim Commission, found very little in the way of local technical experience when he set out to build the new government's IT systems. "Only 10 to 15 people in the eastern Arctic even knew anything about computers," he recalls. And though Arctic College in Iqaluit, Nunavut's capital city, offered a few computer courses, there weren't many takers. Nor was there much interest in the training programs Smith's group offered to recruit local people for IT-related jobs. Given the shortage of qualified IT staff and a fixed deadline, Smith had no choice but to bring in consultants from the

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south to get systems up and running in time for the new territory's official launch.

Smith had to choose the consultants carefully to make sure they'd be sensitive to the local culture. Their mandate was to build a tool for the Inuit government's use, not to create a highly complex system that would be run by outsiders. The IT transition team made it a priority to structure the systems to be manageable—and had to ensure that native government employees could be trained to use and maintain them. "We were always aware that it was a politically delicate situation," says Nancy Chisholm, an Ottawa consultant who worked on the project. "They needed help in bringing self-governance to the region, but the challenge was how to do that while letting their culture and their flavor of life come through."

This fragile balance is perhaps best showcased in the design of Nunavut's legislative assembly chamber in Iqaluit. The room contains the latest in recording and translation equipment for the 19 legislators as well as PC connections with Internet access at each of their desks. However, the igloo-shaped chamber was also designed to reflect the distinctive Inuit culture. At each desk is a seal-skin covered chair and coaster. And in the center of the circular chamber a *qamutik* (hunting sled) holds several traditional icons of Inuit culture—a soapstone *qulliq* (an oil lamp which provided heat and light in igloos), an *ulu* (a woman's knife used to skin animals) and a *pana* (a long knife for cutting blocks of ice to make an igloo).

Early on, Smith's team developed an exchange program to bring some of the local people down to Ottawa for technical training. Although in most cases it was a great success, the program underscored the cultural differences between the consultants and the Inuit. The bustle of a city like Ottawa, after all, can be a shock to the system of someone who has never seen a traf-

The Living Dictionary

A WEBSITE AIMS TO HELP THE INUIT PRESERVE THEIR LANGUAGE

As the population of Inuit elders dwindles, descendants are losing not only the experience and wisdom of their ancestral culture, but their language as well.

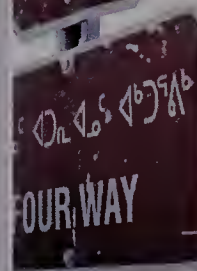
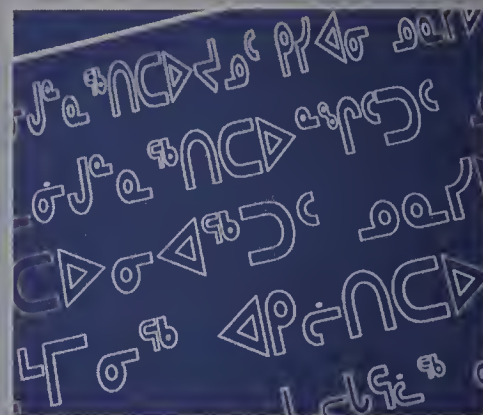
Inuit children are taught Inuktitut (which can be written using roman letters or in syllabic form) in school as well as English. But as more visitors come up from the south and the outside influences of television and other media grow stronger, Inuktitut is losing relevance for the younger generation.

Not only do fewer Inuit speak the language, but words are being forgotten and new ones created to take their place. As different communities invent their own terms for objects in the modern world, the language fragments further. (The tendency is to create descriptive terms. For example, *qulimiguulik*, the word for helicopter, roughly translates to "that which has something going through the space above it.") Old words for which English has no equivalent are also being lost. One such term is *iik*, which means a "sharp, long piece of bone covered with fat or meat tied to a string to be swallowed by a sea gull in order to kill it." Ick, indeed!

To help preserve Inuktitut and all of its nuances, the Nunavut Interim Commission's Chief Informatics Officer Dave Smith began working in 1998 with Jim Howse, principal of Ottawa-based Multilingual E-Data Solutions, to create a "living dictionary." This Web-based repository allows the Inuit to collect, catalog and discuss Inuktitut words and arrive at a consensus on their meanings. The dictionary is "living" because it changes as people add terms and dialect-specific definitions. Language experts administer the site and vet all submissions.

So far, only about 4 percent of the collected words have been posted on the site, which has yet to get many contributions from visitors. But if the community's initial enthusiasm for the site is any predictor, the traffic will likely pick up. When Howse took the concept to the Inuit elders and asked them to supply a name, they called it *Asuilaak*, which translates to "that which was expected has arrived."

—D. Duffy



Technology Translations:

I.T. TERM

television satellite
computer
Internet
e-mail
fax

INUKTITUT WORD

qangattaqtitausimajug
qarasaasiaq
Qaritaujaq
qaritaujakkut titiqqat
sukkajukkut

LITERAL TRANSLATION

"it has been made to fly"
"little artificial brain"
"through the artificial brain"
"letters through the artificial brain"
"through the very fast way"

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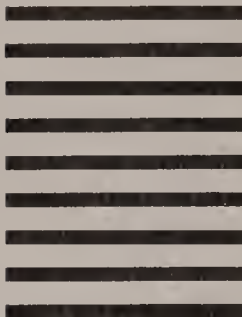
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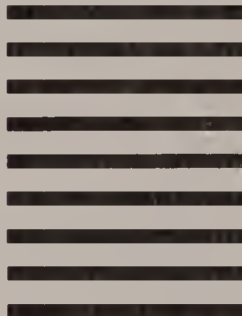
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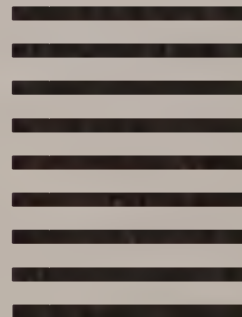
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Long-Distance Assistance

I.T. HAS HELPED IMPROVE THE QUALITY OF HEALTH CARE IN NUNAVUT'S REMOTE COMMUNITIES

With just 14 doctors (only one of whom is a surgeon), 26 remote communities and just one hospital in Nunavut, providing access to health care was an expensive proposition. The health department was transporting patients by helicopter to Baffin Regional Hospital in Iqaluit, Nunavut's capital, and flying specialists into the communities. Yet the standard of care didn't seem to be improving.

To address the problem, the IT group developed a telehealth program that allows nurses in the community health centers to communicate with doctors in Baffin Hospital via a live satellite link-up. The nurses can get referrals and request treatment advice, saving patients the cost and inconvenience of traveling to Iqaluit for an appointment. Baffin Regional Hospital can also link up with hospitals in Ottawa for consultations and training sessions. In short, the technology is helping Nunavut move beyond what Tina McKinnon, telehealth coordinator for the Department of Health and Social Services, calls "third-world health care."

The telehealth program is also easing the loneliness of pregnant women, who must travel to Iqaluit five weeks before their due date and either stay with friends or in a boarding house until they go into labor. Because husbands often can't afford to make the trip, the mother-to-be can go to the Iqaluit telehealth office each week for an hour-long virtual visit with her husband and family back in the community. Once the baby arrives, it's not uncommon for 30 people from a tight-knit community to pile into their local health center and gather around a 20-inch computer monitor to catch a peek of their newest addition.

Baffin Hospital now connects with health centers in Cape Dorset and Pond Inlet; five other communities either link to other hospitals or are slated to link to Baffin soon. As with any project in Nunavut, the greatest obstacle to universal access is money. Though McKinnon's group hasn't done a cost-benefit analysis, they estimate that the savings in patient travel alone will more than cover the cost of the telehealth program, which clearly raises the level of available health care.

—D. Duffy



fic light or a high-rise building. In one case, Chisholm recalls, a Nunavut resident flew down to Ottawa for an IT training course but never showed up onsite. Intimidated by the surroundings, the trainee had flown back to Nunavut the next morning.

To encourage Inuit employment, the IT group also created a structure to enable fast-paced advancement. Chisholm notes that someone can start at a clerical position and get promoted within six months. Often employees with some of the necessary knowledge and skills but no experience will be put in a position two levels higher than normal and paid at that rate. Their superiors act as mentors and help them grow into the job. Today, about 20 percent of IT staffers are Inuit, according to Chisholm.

Inuit contemplating an IT career also get a great deal of support from their own communities. "Although I would like our young people to have the knowledge of our ancestors and the Nunavut way of life, at the same time I want them to have a good education, training and be able to communicate in the world of modern technology," says Irniq. His wish has been realized in his own family. His son works as a systems administrator for the Nunavut government and travels around the territory fixing systems.

AN UNFORGIVING CLIMATE

At midnight on April 1, 1999, fireworks exploded into the night sky above Iqaluit to mark the territory's creation. Citizens hugged and cried, and dignitaries who had flown into the new capital for the occasion gave speeches and shook hands. But even the euphoria of the moment couldn't banish the realities of life in this harsh climate. With an outdoor temperature of -40 degrees Fahrenheit, many celebrants were forced to watch the fireworks from the relative warmth of their cars; the visiting dignitaries who braved the cold did so briefly and then quickly



sought shelter at a nearby army barrack. Visitors with lesser credentials wound up stamping their feet in igloos the town had built at the last minute to handle the overflow.

In Nunavut, the best-laid plans are often thwarted by geography and weather. And for the crew that had just spent a year and a half building the technology infrastructure that would allow the new government to operate, the frozen-out fireworks came as no surprise. Most communities in Nunavut are ice-bound for nine months out of the year, rendering airplanes the primary mode of travel into the territory and between its communities. In fact, the entire territory has only 12 miles of roadway. After factoring in the expense of flying supplies into Iqaluit, most items cost two to two-and-a-half times their price in the

south. Storms and high winds can easily shut down a town for a whole week, making long-range project planning nearly impossible.

After being stymied by the weather several times, Smith and his project staff learned to retool their ideas about reasonable deadlines and time lines for project deliverables. Many of the native Inuit have developed a "take it as it comes" approach to scheduling with the implicit knowledge that everything ultimately depends on the weather. For the project consultants, working with the locals required understanding the different pace of life in the north.

The extreme weather conditions and distance also make it virtually impossible to lay down optical fiber for communications. So in planning Nunavut's technology infra-

structure, Smith had to work around the fact that all communications in the territory are run via satellite. That placed severe constraints on the IT budget because satellite costs are 10 to 100 times that of regular landlines. Relying on satellite communications also means dealing with bandwidth limitations. Often an entire community must get by on a single 64KBps connection—which is less than what many Americans can get in their homes. Smith and his team also had to contend with satellite technology's latency problem. While a two- to three-second delay in transmissions might be a slight nuisance during a phone call, when you're running a big application, latency can mean delays of up to 50 seconds in the processing of commands. Satellite links are also unreliable. Circuits can be out for days at a time, and at certain times of year sunspot activity can disrupt satellite communications.

TAKING IT IN STRIDE

Despite all of the built-in challenges of deploying IT in Nunavut, the Inuit are surprisingly open to the opportunities that technology presents. In fact, they tend to view it as just another tool to be used. They long ago forsook their dog-sled teams for snowmobiles. And Irniq points out that given how easily one can get lost in the Arctic, many Inuit hunters have come to rely on global positioning system technology to navigate the landscape. Today Irniq can send e-mails around the world, an ability that surely would have astounded his mother. And thanks to a Microsoft project that he championed two years ago, he can send them in Inuktitut syllabics (symbols representing the sounds required to make words).

Perhaps the best indication that the Inuit

Mining, tourism, **SHRIMP AND SCALLOP FISHING**, hunting and trapping, and arts and crafts production **DOMINATE** Nunavut's **ECONOMY**.

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The COST OF LIVING in Nunavut is two to three times that of southern Canada. Yet the **AVERAGE HOUSEHOLD INCOME** is roughly **US\$20,445** (compared with **US\$29,397** for all of Canada).

are eager to embrace technology is that parents want their children to reap the benefits of technological literacy. Neil Burgess, manager of information systems planning for the Nunavut Department of Education, says that often Inuit elders come to him to discuss how important it is that their son or daughter has a good grasp of computers, math and science. "They have no formal education, so they may not understand what those things are," he says. "But they know that in order for [their children] to get ahead in the knowledge economy, they require this knowledge and these skills."

In 2000, Nunavut finally installed computers with Internet access and e-mail in all 42 schools in the territory. For communities with just one 64KBps satellite connection, daytime access to the Internet is limited. But students are being exposed to computers and gaining access to a broader curricu-

lum. Through e-mail and the Web, teachers can share curricula, teaching techniques and best practices, and students in different communities can conduct group projects. Currently, many students from Nunavut's smaller communities who want to attend universities are hampered because they can't take all the classes they need to prepare properly. Plans call for a distance learning program that will eventually, despite a perennial teacher shortage, enable schools to offer every interested student the full range of courses in math and science.

Beyond classroom applications, computers and the Internet hold promise for many

of the territory's cottage industries. The outfitters in Nunavut who run hunting trips for tourists traditionally make less money than the middlemen in larger cities who book the trips. Burgess points out that if outfitters advertised on the Internet and used the Web to book their own trips, they would be able to realize a far greater profit.

The same is true for local artisans famous for their elaborate soap-stone carvings and wall-hangings. "They are produced here and then somebody comes and snaps them up and sells them down south for many times the purchase price," says Burgess. A simple website with an ordering

They needed help in bringing self-governance to the region.

The challenge was how to do that while letting their culture and flavor of life come through.

— NANCY CHISHOLM, INTERIM COMMISSION I.T. TRANSITION TEAM MEMBER



system would allow many of these craftsmen to create a better life for themselves and their families.

To those who visit Nunavut now it might seem hard to imagine that these quaint little towns will ever be thriving e-commerce hubs. But from the very first day that Nunavut's IT infrastructure came online, Irniq knew that a new era of possibilities was dawning for his people. On April 1, 1999, congratulatory letters began trickling into Irniq's new e-mail address from far-flung Canadian friends, some of whom he hadn't heard from in almost 30 years. Nunavut may be the Inuit's land, but it's now more connected than ever to the rest of Canada and, indeed, the world. ■

Senior Writer Daintry Duffy donned five layers of clothing when she visited Iqaluit in November. She can be reached at the relatively temperate offices of *Darwin* at dduffy@darwinmag.com.



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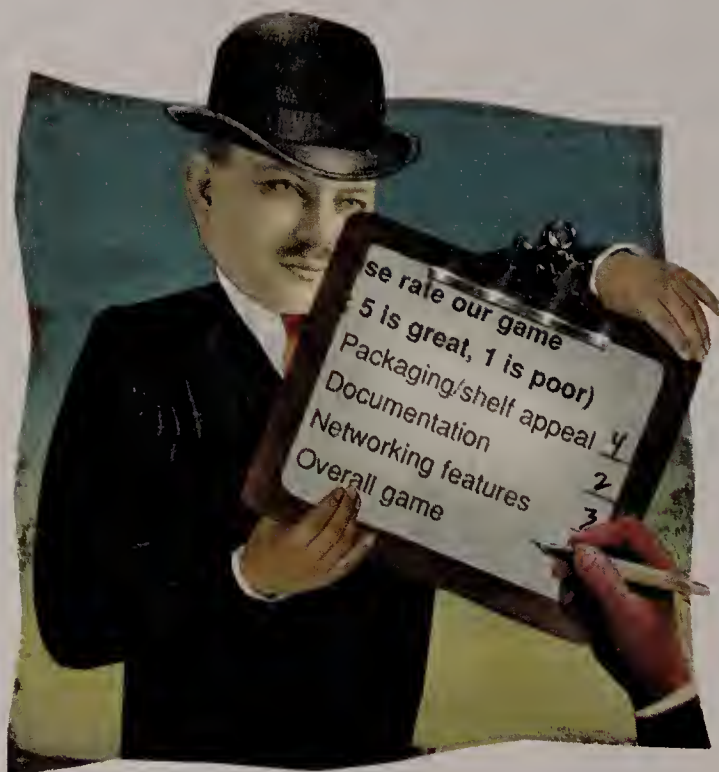
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ONLINE SURVEYS Companies cringe when they get negative feedback from customers—especially if it takes months to hear about the problem.

Statsurvey.com, an online market research company in Los Angeles, conducts customer satisfaction (and all kinds of) polls via e-mail and the Internet so that companies can get survey results in just a few days. Statsurvey.com takes care of the bulk of the legwork, such as survey design, writing code, collecting information and analyzing it. For companies that have a new product and don't yet have a customer base to poll, Statsurvey.com can even rustle up survey-takers, wooing them with cold, hard cash. (For lawyers, doctors, CEOs and other professionals not so easily swayed by a couple of bucks, Statsurvey.com lets them have access to the survey results in exchange for their participation.)

These incentives, coupled with the ease of answering a survey via electronic means, generate online response rates three times greater than offline rates, says Statsurvey.com CEO **Tyler Kirkendoll**. Another benefit, he says, is that "people tend to be more candid online. [Something we call] an e-personality comes out because there's a sense of anonymity to the Web."

Clients include magazines such as *Prevention* and *Men's Health*. Statsurvey.com has also polled customers for Honda, Mazda and Mitsubishi, among others. To conduct a major survey with 100,000 respondents, Statsurvey.com charges as much as \$70,000. But smaller projects, such as polling your employees to choose a summer outing location, can cost as little as \$500.

—Lauren Capotosto

web guide

Wireless

The key to the future lies in "just one word," Dustin Hoffman's character, Benjamin Braddock, was told by a family friend in the 1967 film *The Graduate*. The word then, more than three decades ago, was *plastics*. If director Mike Nichols retold that coming-of-age tale in 2001, that word would likely be *wireless*.

It's hard to go anywhere without spotting a person hauling a Web-enabled cell phone or seeing an ad for a new wireless vendor. Gartner predicts that more than 38 million Americans will use wireless devices in 2003, up from approximately 10 million last year.

If you're thinking of lobbying your IT department to support wireless devices or buying one for yourself, take a peek at these sites. They'll give you a sense of how far along the nascent wireless protocols are in their development and what solutions are available now.

wireless.about.com

About.com's guides are usually some of the best for learning about technology, and this one on wireless doesn't disappoint. The guide's editor, **Brian Newman** (a wireless industry veteran), writes about wireless tools, such as customer relation-



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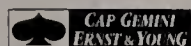
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The Searchers

HOT ENGINE Sergey Brin and Larry Page are masters of a domain the world has its eye on. The co-founders of search engine Google (www.google.com) met as PhD students in Stanford University's computer science department in 1995. Their research—Brin was studying data mining and Page followed the Web—converged naturally, and by 1996 the two had developed technology they thought might revolutionize Web searches.



sergey brin
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They were right. Most search engines rank results based on how many times a requested word or phrase appears on a webpage.

Google's technology ranks results based on the number and quality of links that point to a particular webpage, catapulting the most relevant sites straight to the top. Brin and Page turned their technology into a company in 1998. Now its 7,000 computers perform 70 million searches a day of 1.4 billion webpages (more than any other engine claims to have indexed). "[Indexing] is less of a science and more of an art," says Brin, who speaks with just a trace of an accent from his native Moscow.

As other search sites use stock quotes and news feeds to get more hits and garner more ad dollars, Brin and Page keep Google free of any clutter—ads, which are text-only, appear infrequently and don't show up on the homepage. The site regularly receives high rankings for usefulness and user satisfaction—and fanatical praise from Web aficionados—and has been piling up awards faster than you can say "Googleplex" (the moniker of the company's headquarters in Mountain View, Calif.).

Even so, Page and Brin are not resting on their laurels. A staff of 100 engineers is constantly advancing new technology to make Google searches better, faster and more inclusive, and the company has started licensing its technology to other sites. Life at Google continues to be good, and the company expects to be profitable in the third quarter of this year. Page and Brin, who are still a couple of years shy of 30, plan to finish their PhDs at Stanford...some-time. But really, who needs a doctorate when you've given the world a kick-ass search engine?

—Meg Mitchell Moore

web guide ...Wireless

ship management applications, in relation to broader trends and predictions for the sector.

The guide posts exhaustive lists of organizations that support wireless technologies, including trade associations, standard bodies, research and consulting companies, and vendors. It also links to sites that post jobs, sites that offer books on wireless and just about any Web resource out there that is related to wireless.

www.anywhereyougo.com

Don't let the fact that this site is targeted for developers of wireless technology scare you away. Mixed in with its how-to articles are a good number of general ones that can help even the biggest technophobe understand the evolution of the wireless world.

Anywhereyougo.com posts articles from other publications that report on timely items such as mobile-phone companies' stock prices and new wireless vendors. Its homegrown articles examine broader issues like the state of wireless advertising and the connection between cell phones and cancer.

Highlights include an exhaustive glossary, a comprehensive listing of vendors and a directory of wireless devices, which comes complete with product descriptions and pictures of wireless area protocol (WAP) phones, I-Mode phones, PDAs and Bluetooth devices.



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www.semio.com/teeth

MySimon.com

www.mysimon.com

SCORE ★ ★ ★ ★

THE DEAL MySimon, owned by CNET Networks, allows online shoppers to compare prices on digital cameras, Razor scooters and *Harry Potter* books at more than 2,000 stores. Shoppers can also check out the latest Web sales

and receive e-mails with shopping tips and discount alerts.

THE GOOD The low prices. MySimon regularly comes up with the rock-bottom prices for some of the most sought after gadgets. For example, MySimon found a Sony Clie handheld personal organizer for \$304.98 at eCost.com, while DealTime's lowest price for the same device was \$314.99 at Ebyweb.com. MySimon also provides user reviews and professional reviews and includes the store ratings from Gomez Advisors, a company that judges the reliability of Internet stores.

THE BAD If you're looking for guidance on what to buy, the site's method for helping you make your choice can be confusing and the results are not always helpful. The site is better for those who have already done some research on a product and are looking for the best deal.

site vs. site

Those who want to bypass the mall and comparison shop at home should consider taking detours to MySimon.com and DealTime.com. These two shopping "bots" scour the Web for the best prices at thousands of stores.

RATING ★ (1-5 stars, 5=best)



DealTime.com

www.dealtime.com

SCORE ★ ★ ★ ★

THE DEAL DealTime claims to search 7,000 stores for the lowest prices. Like MySimon, the site offers a wide range of shopping categories but specializes in consumer electronics.

THE GOOD Even if it doesn't come up with an acceptable price right away, DealTime will track a product and keep searching for better deals. Shoppers receive e-mail updates if the site finds a lower price. "Interactive Advisors" help surfers navigate through their choices, narrowing the field and providing advice that can lead to a confident purchase. After we answered a short questionnaire on what we wanted in a 35 mm point-and-shoot camera, an adviser named Anthony Miller recommended three models that best matched our criteria.

THE BAD User reviews from Epinions.com can be helpful, but more authoritative reviews would inspire more confidence.

web guide ...Wireless

www.stardust.com/wireless

This section of Stardust.com (a site that claims to be "making sense of new Internet stuff") has pages devoted to specific facets of the wireless world, including local area networks (LANs), multimedia applications and location services (that track the geographic location of mobile devices). The site is also chock-full of articles, product reviews and presentations.

Don't miss "Viewpoint," an occasional column written by guest pundits who muse on how technologies such as WAP, LANs and intelligent network technology will affect the wireless market.

—Emelie Rutherford

The market for wireless Internet devices will grow from \$10 billion in 2000 to \$73 billion in 2005.

SOURCE: U.K.-BASED STRATEGY ANALYTICS

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NONCOMPETES It's time for a change. But what happens when you can't make that change? What happens when it's time to leave your job and your soon-to-be former employer has made you sign a noncompete agreement? You may be out of work and out of your industry.

Well, maybe not. There's a website that wants to give you a fighting shot at freeing yourself from your old-job shackles. Last June, Virginia Beach, Va.-based lawyer **Carl Khalil** founded Breakyournoncompete.com to provide advice to lawyers engaged in court battles over noncompete agreements. For \$49, the site offers a three-part strategy to break your noncompete. The first part is a broad outline of possible defenses. The second part of the strategy shows your lawyer how to turn the tables and sue your ex-company for damages. The third part suggests gaining legal leverage by digging up cases where the former employer let departing workers out of noncompetes.

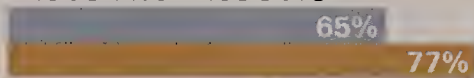
The outline gives around 140 noncompete scenarios and angles for an attorney to use singularly or in combination.

—Joe Sullivan

Nothing but Net

Here are the top three uses of the Internet for e-commerce, according to a recent study by Cahners In-Stat Group.

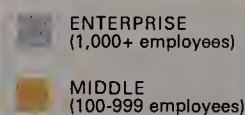
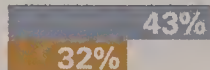
PROCURING PRODUCTS



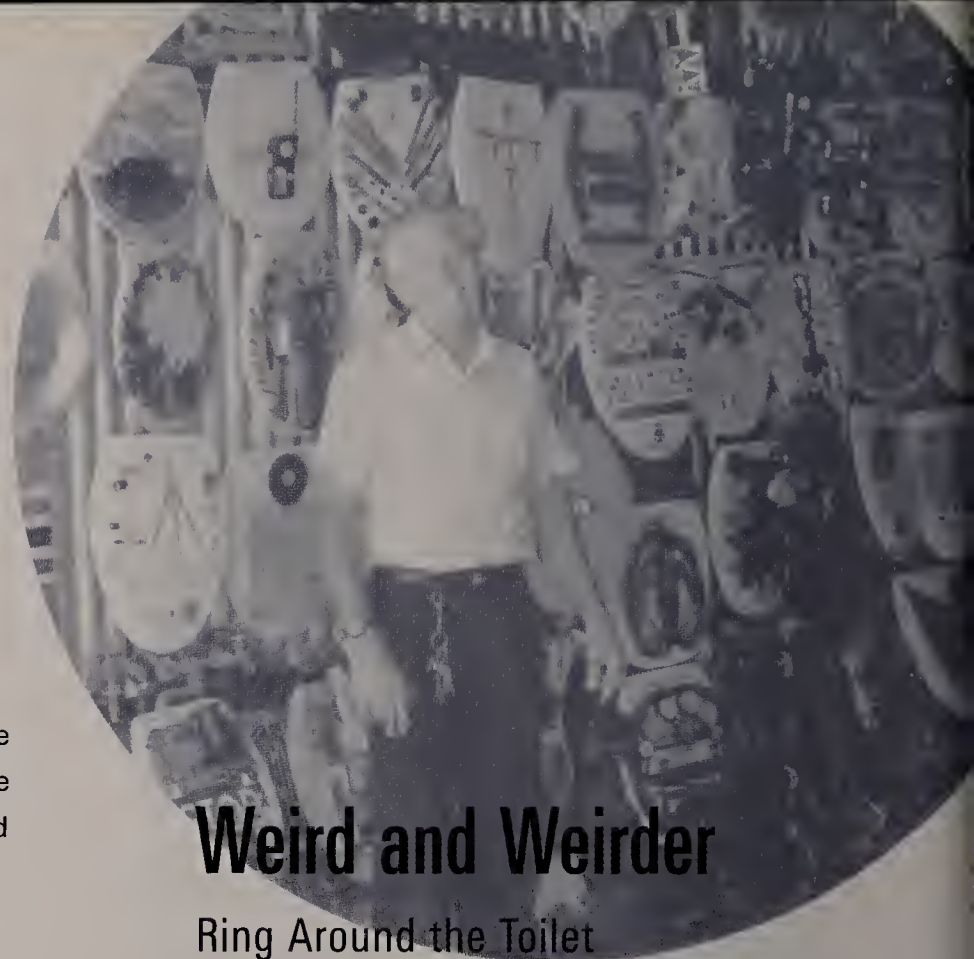
SUPPLIER/BUYER NETWORK



SUPPLY CHAIN MANAGEMENT



SOURCE: "ALL BUSINESS IS E-BUSINESS: DEMAND FOR INTERNET INFRASTRUCTURE AND THE BUILD-UP OF COMMERCE CAPABILITIES IN THE MIDDLE & ENTERPRISE MARKETS," CAHNER'S IN-STAT GROUP, DECEMBER 2000



Weird and Weirder

Ring Around the Toilet

www.unusualmuseums.org/toilet

Welcome to **Barney Smith's Toilet Seat Art Museum** in Alamo Heights, Texas. Barney has decorated more than 510 seats, and they are proudly displayed in his oversized garage, a.k.a. his museum. There are seats decorated with buttons, license plates and hand-painted maps. Don't miss the commemorative seats for the 1999 NBA Finals and NBC's *Later Today* show—you'll be flush with admiration.

Snack Attack

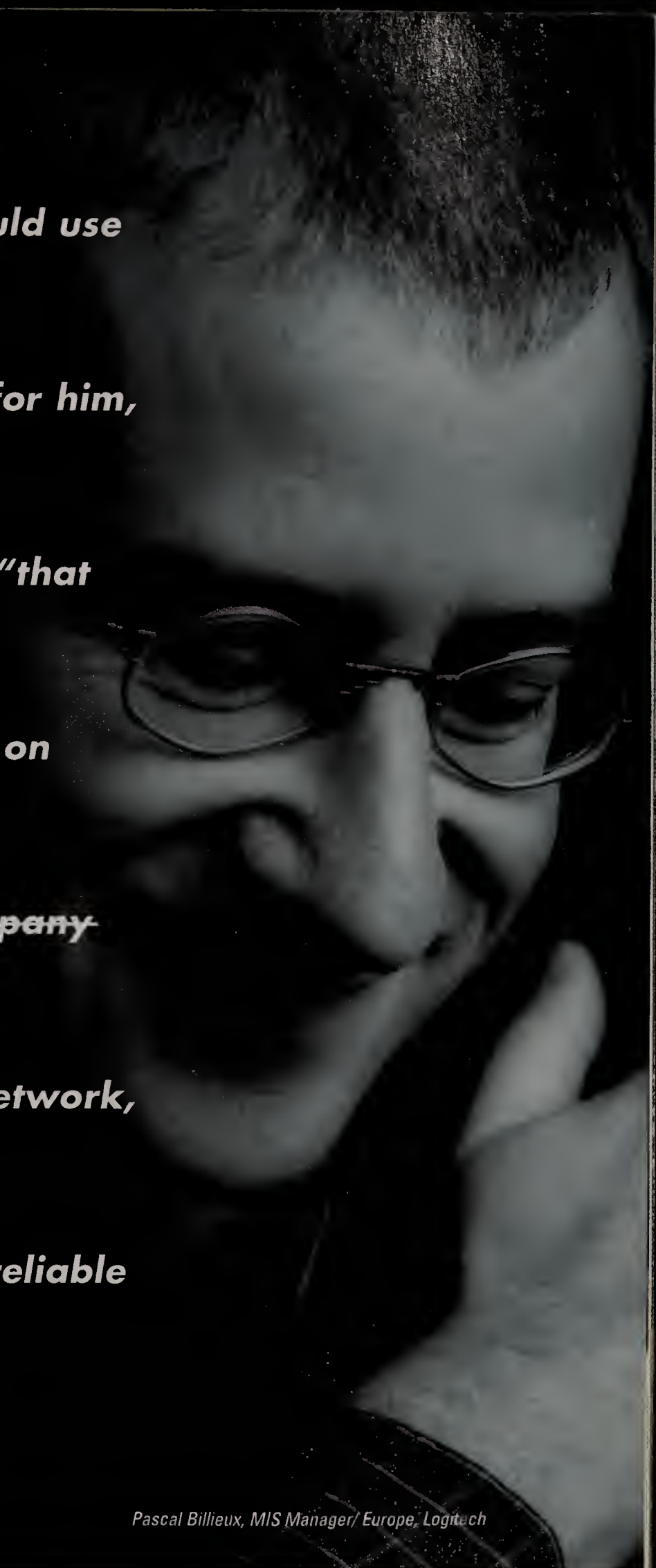
members.twinkiesproject.com

Is there any food—or whatever you call 342 natural and unnatural ingredients combined to make a moist, lovable, golden sponge cake—as American as the Twinkie? We think not. Six years ago, two Rice University students put the grand dame of snack cakes through a series of "scientific" tests, including rapid oxidation (they burnt it), solubility (they soaked it) and gravitational response (they dropped it from the sixth floor of a dorm). Check it out, chuckle, then go out and buy a couple dozen for old-times sake.

That's Good Grub

www.ent.iastate.edu/misc/insectsasfood.html

The Entomology Department at Iowa State University wants you to know that bugs are darn good eatin'. It provides a wide range of recipes like banana worm bread, rootworm beetle dip and corn borer cornbread muffins. The handy-dandy nutritional chart lets you know that silkworm pupae have 9.6 grams of protein and a surprisingly high fat content of 5.6 grams. June beetles might be the better bet: They have only 1.4 grams of fat but pack in 13.4 grams of protein.



**Pascal Billieux of Logitech said we could use
his picture in an ad and write words for him,
provided he could cross out anything "that
made him sound goofy." Pascal relies on
Global One ~~and feels it's the best company~~
~~he's ever seen.~~ Their global telecom network,
products and services are incredible, reliable
and flexible. ~~Pascal is ecstatic.~~**

Pascal Billieux, MIS Manager/ Europe, Logitech

Global One's high-speed Internet access, Global IP Direct, helps Logitech's critical e-commerce and business sites move tons of data quickly and smoothly around the world. And when Logitech's customers need help, Pascal trusts Global Call Center to handle calls seamlessly from all over Europe. No wonder he's ~~deliriously~~ happy to work with us. For more information, please visit www.globalone.net or call 1-877-460-4141.



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Try Before You Buy

Follow these tips on how to evaluate software, and you may save yourself the pain and sorrow of buying vaporware



BUYING SOFTWARE WITHOUT TRYING IT OUT IS

like buying a used car without test-driving it—you could end up with a lemon and not know it until it stalls in the middle of the road. You wouldn't just take a used car salesman on his word that a car runs like a charm, right? Likewise, you can't rely on a software salesman's assurances that what he's offering isn't a lemon—it's up to you to put the system through its paces. If you follow these tips, you can do a lot to prevent yourself from unknowingly buying software that doesn't do what you need it to do, or worse, software that doesn't exist or isn't ready for customers to use, also known as "vaporware," an all too common slight-of-hand practiced by the software industry.

Why is vaporware so common? Because software sales reps and marketers are under huge pressure to win sales, increase market share and generate revenue. They often ignore or dismiss the product delivery dates

that developers set—and, in turn, make promises to customers that the developers can't always keep. The result is vaporware—software that's talked about, and that the vendor may even have a demo of (basically, just a shell of the program) but that is not ready for prime time.

The best way to cut through the haze of vaporware is to do a thorough evaluation of any software you plan to buy. You need to make your buying decision based on what is available in the software right now, not what will be available in the future. If you're not careful, you could wind up like the Oklahoma City Water Utilities Trust, which spent \$1.3 million on software that turned out to be vaporware (see "Buyer Beware," *Darwin*, June/July 2000).

Choosing the Test-Driver

There are three ways you can evaluate software. You can pick one person in-house to do it, put together an internal team or hire an outside consultancy. If you are buying software for your department and the budget is small, go ahead and give the job to one person. But if you are considering a large system that is critical to your business as a whole you should use a team or an outside consultancy.

Should you go the single evaluator route, be sure to choose someone who knows what problems the software must solve, whether the software's users are tech-savvy and how the software needs to integrate with other systems in the department. Your evaluator can come from your department or from the IS department, as long as he understands these critical issues.

If you're looking at a larger software purchase and decide to form an evaluation team, you must have a technical person on it. She will know the key questions to ask about performance, integration with legacy systems and other technical issues. Also, if the software is going to be used by people in your company, make sure the team includes an employee who will use the system. Employees resist using software applications when their needs and concerns were not considered

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spin cycle

and addressed during the evaluation stage.

Should you decide to hire a consultancy to evaluate software for you, don't make the mistake of leaving the review entirely up to that company. Be sure that either you or people in your department are also involved. I once worked with a consultant from a very reputable company. She was responsible for evaluating software and recommending it to the client, a major company,

person tell you what a key function does—ask to be shown what it does. If the salesperson rushes through a key feature, stop and ask to see the feature demonstrated again. If a feature or module doesn't work during the demo, watch out—chances are good that it won't work when you buy the software.

Given a choice between demonstrating an old version or a new version of software, a software salesperson will typically show an early version of the next release (called the beta release) if it has more features and doesn't have too many problems or bugs. That's fine for the salesperson but potentially bad for you if you make your

With software demos, the most important thing to remember is that what you see isn't always what you get.

and she had no idea what she was doing. She had recently graduated from college, had very little business experience, wasn't familiar with the client's business need or with the technology—yet she was responsible for making a recommendation. And this was not an isolated incident: Big consultancies will sometimes bring in the experienced people for the sales pitch and assign an inexperienced consultant to work with you. Don't fall for this—make sure the consultant leading your evaluation understands and has some experience with the software you need.

Sorting Software from Vaporware

Once you've settled on who will evaluate the software, it's time for D-day—demonstration day. First, schedule enough time for the demo. I've seen people pop in a demo and stay for only a third of it—and then make a buying decision without asking any questions. Also, bring the vendor's answers to your RFP to the demo to see if they are consistent with the way the product actually performs.

With software demos, the most important thing to remember is that what you see isn't always what you get. You have to ask questions to make sure that you are not seeing vaporware. Software salespeople avoid showing the functions and features that don't work or exist—they may show you the interface, but they know which on-screen icons to click and which ones to ignore.

Don't follow the salesperson's script—follow your own. Bring a checklist of the functions and features you need to see, and make sure that you see them during the demo. Tell the salesperson before the demo what features you want to see and in what order.

Don't let the salesperson spend time on a module that you are not going to use. And don't let the sales-

decision based on software that isn't available yet.

Beware of the software crashing during the demo. The salesperson might shrug it off or try to blame it on Microsoft Windows, but this may be a sign of something wrong with the software. If the software crashes with one salesperson using it, you have to question how it will perform when all of your people are using it.

Also, make sure that what you're seeing is the base version of the product, not a customized version. Demos can be customized so much that you wouldn't recognize the real product. You want to see the system that you will actually get.

Taking the Evaluation In-House

Many software vendors that sell larger, more expensive systems will make their software available for in-house testing. Do it. Install it, and have your people use it. The vendors will usually let you try it out for a limited time, say 30 days. This is the best way to evaluate the software because you can do what you want with it, without the salesperson being there to control the demo.

Compare competing applications on the features they offer and the requirements they meet. Don't rely on the comparison information supplied by the software vendor; make your own comparison chart by listing the key features and requirements and how each vendor addresses them.

By thoroughly evaluating software before you buy it, you can avoid buying vaporware—and avoid watching your investment go up in smoke. ■

Wayne E. Pollard, a former marketing director and regional sales manager, now likes to sit in the passenger seat during software test drives. You can reach him at wpollard@home.com. Send column ideas and comments to spincycle@darwinmag.com.

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Jenica Lee, 20

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the fittest

Edited by Todd Datz

STUFF YOU NEED
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Baby You Can Drive My (Smart) Car

TECH TRENDS IN AUTOLAND Until your repair shop technician informs you that there's a \$1,500 problem with your engine's CPU, you may not be aware that your vehicle just might have more computing power in it than your desktop.

Microprocessors first earned their way under autos' hoods in the 1980s to control such unglamorous tasks as ignition timing and air-fuel mixing. The automotive applications of chips have been multiplying ever since.

Darwin took a look at some of the latest and hottest technologies in the automotive market. Here's a sampling.

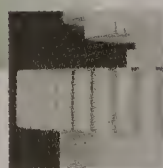


Active handling Most drivers know when they've taken a corner too quickly. Some can take steps to extricate themselves. But no driver of a conventional vehicle can brake harder with one tire than with another.

For the Chevrolet Corvette that's a piece of cake. Introduced in 1998 and revamped for the 2001 model year, the Corvette's Active Handling System maximizes the traction available at each corner of the car. Let's say you come off a highway ramp at too high a speed. Sensors kick in that detect wheel speed, yaw rate, steering angle and other variables. That input is fed to a microprocessor that sends cor-

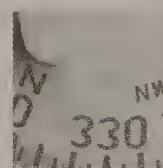
rective instructions to the antilock braking and traction control systems.

Several other high-end cars are similarly equipped. Mercedes-Benz's version, dubbed Electronic Stability Program, is standard on many of its models. Cadillac, Lexus and several others also offer active handling.



"Manumatic" transmissions Efforts to combine the control of a manual transmission with the ease of an automatic are far from new; Plymouth unveiled such a system (called Hy-Drive) in 1953. But in the past several years, automakers have begun to reemphasize the technology.

Modern manumatics let drivers either leave the car in drive, as with a conventional automatic transmission, or select gears themselves—without a clutch. In either mode, the transmission senses variables such as vehicle and engine speed, torque and throttle position, which allows for more efficient shifting. Porsche claims its Tiptronic S (the latest version of its gold-standard manumatic) changes gears in 0.2 seconds. Expert drivers require twice as long. Virtually all car companies offer a manumatic already or will by 2002.



Telematics General Motors' OnStar service, which integrates global positioning system (GPS) mapping with such features as cell phone capabilities and the ability to diagnose malfunctions remotely from a central GM center, will add voice-activated, keypad-free calling this year, as well as voice-enabled Internet access to stock prices, news and other information. GM says OnStar will soon be found in 4 million of its vehicles by 2003; other manufacturers are hustling to catch up. **Bob LeFort**, a vice president at Infineon Technologies, a Munich, Germany-based supplier of integrated circuits to automakers, says GPS itself, which now requires only a credit card-size chip set in cars, is a "near commodity." He expects the fancier telematics features like Internet access to follow suit, achieving commodity status in the next two years.

—Steve Ulfelder

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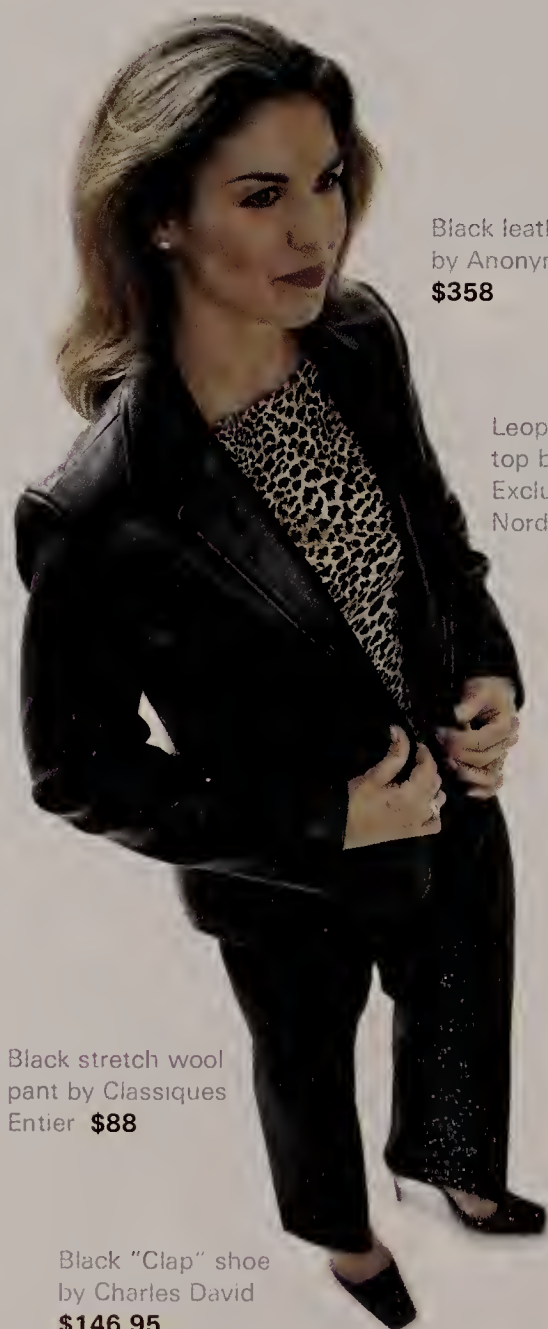
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The Professional Casual Woman

OFFICE CHIC In general, women tend to watch fashion trends pretty carefully. They know when hemlines go up, when tall boots are back and that pashminas are so last year. But the trends that one would find on the pages of a New York City fashion magazine don't always fly in a business casual office environment. We went to **Heather Hested**, the east coast fashion education coordinator for Nordstrom in Maclean, Va., to get some tips on how women can make their office wardrobe fashionable without sacrificing their professionalism.

—Daintry Duffy



Black leather jacket
by Anonymous
\$358

Leopard print
top by BCBG.
Exclusively for
Nordstrom \$82

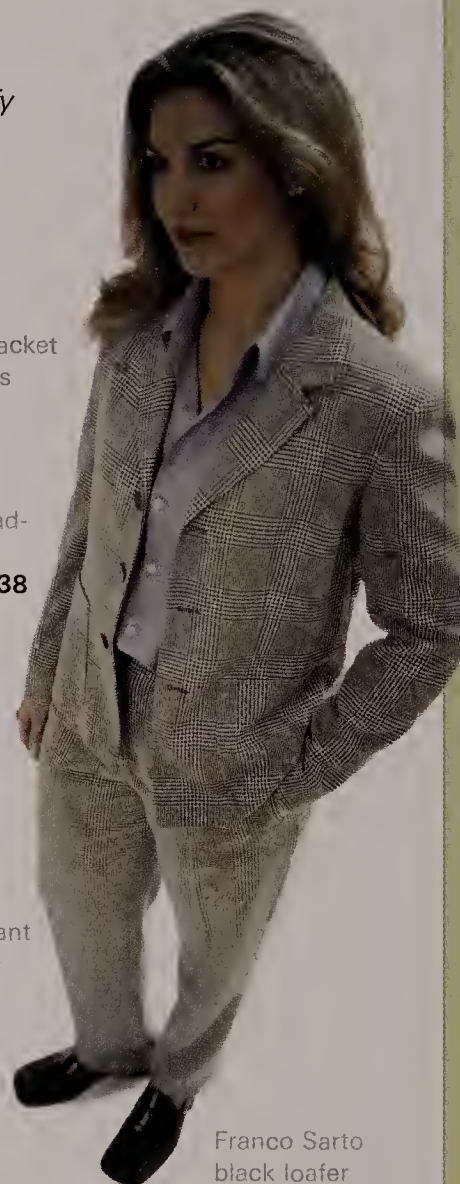
Black stretch wool
pant by Classiques
Entier \$88

Black "Clap" shoe
by Charles David
\$146.95

Glen plaid jacket
by Bill Burns
\$398

Lavender broad-
cloth shirt by
Bill Burns \$138

Glen plaid pant
by Bill Burns
\$258



Franco Sarto
black loafer
\$89.95

HESTED'S HELPFUL HINTS

- No denim or khaki.
- Pay close attention to what your boss wears to determine what's acceptable.
- Don't buy items on sale that you would never buy at full price.
- Color is key: Southwestern cactus colors, coral, bronze, rose, sea foam, aqua and lemon yellow are currently in vogue.

FASHION DOS & DON'TS

JACKETS AND BLAZERS

Leather and suede jackets in a blazer style are good fashion choices because they are casual, yet they have a tailored style that works well in a professional environment.

SHIRTS AND SWEATERS

Wrap shirts and twin-set sweaters are very stylish right now, and Hested predicts that this spring silk and chiffon blouses will be back, though she cautions women to avoid those that are overly sheer.

PANTS

Capri pants are still around but women should look for ones that fall around the ankle for office wear. If they're any shorter, they're not appropriate for the office. Hested predicts that this spring pants will be going back to fuller styles, similar to a man's trouser.

SKIRTS

Skirt styles this spring are going to evoke memories of the '80s, with fuller skirts that hit just at the knee or above. Slimmer skirts are still in fashion, but should fall just above the knee. Any shorter than that is inappropriate for office-wear.

SHOES AND ACCESSORIES

Rubberized soles and chunky heels are strictly for weekend wear. For comfortable office shoes Hested suggests a low-heeled mule. On the accessory front, pearls are key: larger pearls, and black and white mixed pearls. Scarves are also back and the chain belt is apparently still quite stylish, though it can be hard to pull off, unless you're one of Charlie's angels.

DRESSES

Magazines are showing a lot of sheath dresses this spring and many styles have open backs. Hested says these dresses can be worn with a sweater or blazer during the day and can be worn by themselves in the evening.



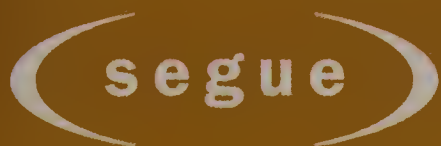
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Put Down That Last Doughnut and Get Online

VIRTUAL DIETING So, you've read all the fad diet books, grooved to Tae-Bo tapes, watched countless episodes of *Oprah*, and still the alarming tip of the scales sends you down a spiral of shame each morning. Well, here's one more way to torture yourself to thinness. In the past year, a variety of diet sites like Cyberdiet.com, and eDiets.com have been popping up all over the Web, offering tips, recipes, community support groups, personalized meal plans and exercise programs to help members shed those pesky pounds.

The attractions of going on a virtual diet are manifold. To start with, there's the privacy factor. If you splurge one week and polish off a plate of cupcakes, who's to know? There's no embarrassing weigh-in or guilt-inducing lecture. When you finally hit the scales, the number stays between you and your computer desktop. If you're not feeling too good about what that number is, you can just fudge it (if you'll forgive the term).

On a more serious note, virtual diets can serve as a useful time-saver.

Many busy professionals barely have time to go food shopping or to the gym, let alone search around for low-fat recipes and work with a personal trainer. Most of these sites deliver a personalized daily plan for food intake and exercise, which helps take the thought and planning out of getting in shape. Of course, thought doesn't always translate into action: No site can force you out of bed on a midwinter's morning for that five mile run.

Some sites like Asimba and eDiets require monthly fees (\$24 per month and \$10 per month, respectively, when we checked) for enrolling in their program, while others like Cyberdiet and DietWatch.com are free of charge. However, don't let the difference between fee and free fool you into thinking you're getting a better service. The paid sites may have a few more technical bells and whistles, like eDiets animated fitness instructor, but anyone who is serious about losing weight will get just as much information and support from a free site. Most of the sites have menu planners, progress logs, coaching from nutritionists and fitness experts, and community support areas where you can share your experiences and get motivation from fellow dieters. While a virtual diet may seem more appealing than schlepping to a Weight Watchers weigh-in each week, there is little evidence that they'll be any more successful in getting people to lay off the snacks.

In fact, I suspect that virtual dieting may be the best way yet to blow off a diet.

Maybe I just won't turn my computer on today....

—Daintry Duffy

Check out these sites

www.ediets.com

This is the biggest online-support community, with 35 boards and more than 250,000 postings.

www.asimba.com

A partnership with fitness site Exp.com, Asimba enables members to consult with personal coaches and trainers online.

www.cyberdiet.com

A large wellness-resource section offers advice on eating right for people with specific medical conditions, like cancer or arthritis.

www.dietwatch.com

Check out the cool nutrition calculator—type in a food or beverage and the quantity that you ingested, and up pops that meal's nutrition information, which you can then enter in your personal diary.





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the fittest



Newt Gingrich

OLD POL, NEW GIG

Though no longer at the epicenter of republican politics, Newt Gingrich has not faded away. He's CEO of The Gingrich Group, an Atlanta-based communications and management consultancy. When he's not advising clients, he's chatting up venture capitalists, entrepreneurs and scientists in Silicon Valley, where he keeps abreast of new technologies and their impact on business and society.

DARWIN What are some of your thoughts on the role the Internet can play in business and society?

GINGRICH The Internet is transformational in the same way that the telephone and the printing press were. And as it goes wireless, it'll become even more ubiquitous. I suspect that in the next decade, virtually every person (certainly in the advanced countries) will have some kind of wireless Internet telephone utility, and they'll be routinely connected to the world.

Given what happened in Florida during this past election, do you see a role for technology in voting?

Sure. Compare, for example, the accuracy of your ATM or your credit card-enabled gasoline pump with the error rate in voting. [In the 2000 presidential election,] 1.6 percent of the votes cast nationally, on average, were not correctly counted. Look at the gap that already exists between the application of Internet-based techniques in banking and gasoline pumps with the stunning obsolescence of the voting system.

At a minimum right now, we ought to go to an ATM-type machine where it's all onscreen, you confirm your selection before you vote, and it's 100 percent accurate. I think the next stage after that will be Internet-based voting, probably using a thumbprint for security.

I understand you're a frequent visitor to Silicon Valley.

I try to come out to Hoover [the Hoover Institution at Stanford University, where Gingrich, a distinguished visiting fellow, studies how science and technology relate to public policy] about four days every six or seven weeks. I spend time there talking to academics and intellectuals. I spend a little bit of time at the Ames Research Center of NASA, looking at nanoscience, biology and supercomputing. I talk to a lot of venture capitalists about what they're funding, what they see happening. I go to see companies that are using technology in either established places like Yahoo or brand-new startups.

I find the area from San Jose to San Francisco to be remarkably creative. I'm never in California for three or four days without getting a sense of exhilarating new ideas and new approaches.

You believe that every 4-year-old child should have a computer. Why?

I think that the computer and the Internet are the information sources of the future, and if you want your company to get into the future, you have to make sure that poor children aren't left behind. If you look at the number of upper-middle-class families that have access to computers for their 4-year-olds, it's pretty profound. I think the minute you have kids in public housing or kids in poor neighborhoods who watch television and see what's happening with successful kids, and then they walk into school and they are given an old textbook, and paper and pencil, they're being told

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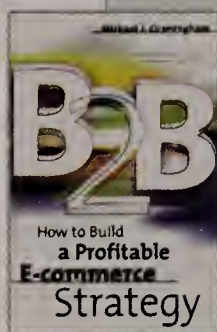
from day one, "You're not going to play in the big leagues." I think it's very dangerous. If we want this country to be unified, which I do, and we want it to move forward, then I think we have to find a way to help these kids.

You've said that the federal government should dramatically increase its investment in R&D. How does that jibe with your strong belief in a smaller government?

Well, I don't think the two are incompatible. There are a lot of things that the government doesn't need to be doing. But I think that basic research and development is the heart of the future, and we would not have had a computer without U.S. government funding. We would not have had the Internet without ARPA [Advanced Research Projects Agency] financing it; it was originally called ARPAnet. You can go down the list. The U.S. Congress paid for the first telegraph line, from Washington to Baltimore. We had land grants to the national railroads to build a transcontinental railroad. We have a long history in this country of effectively using government to create a faster future.

I draw the distinction between basic research, which I think the government should fund and in fact should probably double, and applied research to create products, which I think mostly should be done by the private sector.

—Todd Datz



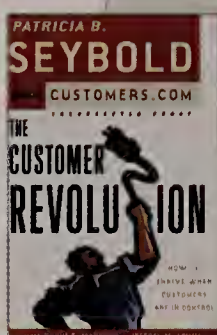
B2B Basics

B2B: How to Build a Profitable E-Commerce Strategy

By Michael J. Cunningham | Perseus Publishing, 2001

IF HEARING THE TERMS B2B AND B2C MAKE YOUR HEAD SPIN AND YOUR BODY ache for the familiarity of old-economy terms (like profit), this book by Michael Cunningham, CEO of Westford, Mass.-based consultancy Harvard Computing Group, will help you keep the definitions straight. Cunningham packs the book with explanations and a history of the Internet and e-commerce to give you a base for building a B2B strategy. However, because the book lacks insights from executives who have successfully implemented such strategies, it will remind you of many a PowerPoint presentation—plenty of simple graphs and dry conversation that, while important to digest, may make you sleepy. Use it as a reference rather than a readable guide.

—Sarah Johnson



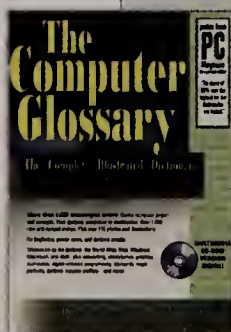
Customers Rule

The Customer Revolution: How to Thrive When Customers Are in Control

By Patricia B. Seybold with Ronni T. Marshak and Jeffrey M. Lewis | Crown Business, 2001

IN THIS FOLLOW-UP TO HER 1998 BEST-SELLER, *CUSTOMERS.COM*, PATRICIA Seybold warns that companies are no longer in control of their own destinies—customers are. With customers now in the driver's seat, companies need to recognize that customer relationships count and customer experience matters. Seybold, founder and CEO of Boston-based consultancy The Patricia Seybold Group, says that to succeed in the customer economy, companies must measure customer value, monitor the customer experience and provide a great branded customer experience. She outlines eight steps to delivering that experience and backs up the recommendations with plenty of case studies, including not only the usual suspects like Charles Schwab but also the likes of Buzzsaw.com, Okobank and W.W. Grainger. *The Customer Revolution* offers clear-headed analysis and concrete advice for dealing with a decidedly squishy yet vitally important issue.

—Alice Dragoon



Geek Reference

The Computer Glossary: The Complete Illustrated Dictionary

By Alan Freedman | Amacom, 2000

BY NOW YOU KNOW THAT WHEN YOUR CIO MENTIONS COOKIES AND CHIPS, HE'S not planning a corporate party. But when he utters CICS (customer information control system) and ISVs (independent software vendors), your head spins like an SUV on black ice. This book, which comes packaged with a CD-ROM, covers 6,000 terms in-depth so you don't have to pretend you're down with the geeky lingo anymore.

—Lauren Capotosto

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September 23-25, 2001 The Waldorf=Astoria, NY 877-829-7528

What Is a Virus?



When my IS department tells me to update my virus protection, I usually ignore them. Is that OK?

Absolutely not. Computer viruses can wreak havoc on your company's computer system—destroying files and infecting other computers. A computer virus is a program designed to replicate, most likely without the user's knowledge, and attach itself to files and applications.

Who makes viruses?

Virus creators are people with malicious intent. Sometimes they want to strike the computers of their former companies. The abundance of common applications like Microsoft Windows and Outlook has also made it easier for programmers to create viruses because knowing how applications are designed makes them easier to infect. But some of the worst viruses are semi-bad viruses gone wrong; if a creator unknowingly puts a bug in a program, the virus can do more harm than intended.

How do they spread?

Users spread computer viruses just like people spread

the flu—by sharing “germs” (in this case, corrupted files, diskettes or e-mail attachments). Opening an infected file is like touching someone who's contagious—even if you wash your hands (or delete the file) you're already in danger. Viruses are sneaky. They can come in an e-mail attachment from someone you know who doesn't even realize she sent it to you. Or you can download something you think you want from the Internet—a screen saver, for example—and unleash a virus unknowingly.

What kind of damage can viruses do?

Lots. Viruses can erase your hard drive, destroy files or even allow someone to control your machine remotely. One of the most famous viruses was the Love Bug virus, which spread through e-mail attachments in May 2000. When unsuspecting recipients opened the attachment, the virus instructed Microsoft Outlook to e-mail itself to the user's entire address book—infecting computers around the world with staggering speed. The Love Bug infected 2.5 million to 3 million computers. Reports of the damage the virus caused range from \$2.5 billion to \$10 billion.

Beware, however, of virus hoaxes—invented e-mails that warn readers about nonexistent viruses and propagate frightening stories. Virus hoaxes clog mailboxes and waste users' time. They have become so prevalent that antivirus websites post lists of virus hoaxes.

What can I do to keep myself virus-free?

The best way is to use reliable antivirus software (these days, such software comes pre-installed on many computers or you can buy it in any computer store). Because the virus landscape changes so rapidly, it's important to download virus updates about once a month. Most important: Listen to your IS department when they give you instructions about virus protection. They're trying to keep you healthy. 

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